EDITORIAL

Railway Age

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The Welded Joint in Structural Steel

The progress made in the last ten years in the electric and gas-torch welding of metals has frequently raised the question as to the possibility of substituting the shop or field weld for the riveted joint in structural steel work and renewed impetus is given to this idea by the recent fabrication and erection of a small mill building in New York City, in which all parts of the columns and roof trusses were joined by electric welds. This method of construction was approved by the city building department only after load tests gave satisfactory evidence of the strength of the joints made. While it is a far cry from a 40-ft. roof truss to a 300-ft. railroad bridge span, or even a 100-ft. plate girder, there is bound to be speculation as to the extent to which the weld may eventually be substituted for the rivet. Even if rivets are indifferently driven, the riveted joint suggests attributes of comfortable assurance that cannot be obtained in the welded joint until records of tests show a ratio of failures to total trials that compares favorably with the proportion of false-clear indications in block signal operation. But the structural effectiveness of the joints is not the only consideration; greater economy as compared with riveted work is a further requisite, and herein lies the chief promise of the weld. While the efficiency of the riveted joint is definitely limited by reason of the necessity of cutting holes through the adjoining members, the limitations of the welded joints are of an entirely different character, and it will be interesting to note with what degree of success they may be made more efficient than the riveted connection. Reliability, of course, remains the prime consideration.

The Accounting Officers' Association

The meeting of the Association of Railway Accounting Officers which was held at Atlantic City last week had unusual reason for enthusiasm and earnestness. Both American Railroad Association and the Association of Railway Accounting Officers have now been affiliated with the Association of Railway Executives, but unlike the mechanical association, the accounting officers' association retains its own name and complete independent identity. Sentiment alone would have led to satisfaction in this respect, but there are sound reasons other than sentiment that led to the decision to retain the accounting officers' association separate both from the American Railroad Association and the Association of Railway Executives. Even before public regulation of the railways had assumed the overshadowing importance in the internal management of the companies, the accounting department performed a dual function. It acted as a check on the department that took in revenues and that paid out expenses, and it formed a link between the security holders and the management. The second function was often enough disregarded by managements in the past, but is no longer treated lightly. Now the accounting department also performs an important function as the link between the regulatory authorities and the management. All during government operation the Railroad Administration showed entire confidence in the accounting officers' association, and although both federal and corporation officers were on an equal footing in the association, no internal dissension arose. It is becoming more and more usual for the larger companies to elect their chief accounting officer a vice-president, and since without exception the chief accounting officers of the larger roads are members of the association, the opinions of the association, its practices, and ideals, carry unusual weight with the Association of Railway Executives. If anyone is interested in getting a clear idea of the work which the association is doing, they can do no better than read the address of a retiring president of the association, A. D. McDonald, vice-president of the Southern Pacific. This address is printed elsewhere in this issue in connection with a report of the proceedings.

Long-Distance Freight by Automobile

"A Menace to the Railroads" is the head line which one editor has used to emphasize the news item, published in our issue of May 7 (page 1371), about the use of automobile trucks to carry freight 800 miles. A "menace" implies an impending evil; the word may or may not be applicable in this case. It is very questionable whether trucks running on the highway will make any permanent inroads on the railroads' traffic, except for short distances; and undoubtedly there are many kinds of valuable freight which can be handled short distances in congested districts more advantageously by motor truck than by rail. Indeed, the "ship-by-truck" booms now being exploited here and there are largely based on the temporary high value of certain classes of goods. But there would be no "menace" in sight, even if a lot of freight-car traffic were to be lost; the railroads are unable to carry what traffic is offered. They can use all their resources for a long time to come in performing services, much needed by the public, which the automobiles cannot render. The real "menace" is to the general public; the menace of being fooled into thinking that costs which are concealed are abolished; or that wasting is saving. The manufacturer who runs trucks and lets the town or the state pay for the maintenance of his roadway is shifting a part of his costs; but he may not be escaping them entirely. In the long run the public has to support the railroads; and whether it is good economy, after building a railroad, to turn a part of its business over to private carriers, unregulated, is a question which ought to be settled rationally, not ignored childishly. Cloth and rubber worth fabulous prices, which put them in the class with diamonds, may feel their importance too acutely to ride in common freight cars, even when cars are plenty; but if, finally, they become parts of luxurious limousines they only help to postpone the long-desired day when the production of necessaries shall overtake the pressing shortage of men and materials now felt everywhere. The public, which at last is in a state of mind to appreciate the value of its railroads as a fundamental element in the essentials of existence, should feel menaced, not when freight cars are used exclusively for food, fuel, building materials and other necessaries, but rather when luxury shipments are so numerous and pressing that long-distance freight costs of twenty cents per ton per mile are an every-day affair.

How Much Railway Wages Really Have Advanced

THE QUESTION whether railway wages should be advanced, and if so, how much, is now primarily a public question. This is due to two facts: First, the net operating income of the railways has been practically wiped out, and therefore it is incontrovertible that any advance in wages which may be made will have to be met by advances in rates which the public must pay and not out of the net operating income of the companies. Second, an agency created by law which represents the public, namely, the Railroad Labor Board, must determine what advances, if any, shall be made. Since the question has become almost solely a public question, it is extremely desirable that the public should know all the facts about changes which have been made within recent years in wages and conditions of employment of railway employees.

The payroll of the Railroad Administration for January, 1920, has been made public since the hearings before the Railroad Labor Board began. Some very interesting and pertinent comparisons can be made between the statistics it contains and past statistics regarding railway wages. The demand of railway employees for additional large increases in their wages is based chiefly on the increase in the cost of living. In the estimates made by government bureaus regarding increases in the cost of living, the cost of living for the year 1914 is usually taken as a basis. The increase in the cost of living since 1914 is now officially estimated at approximately 100 per cent. How near have the advances in railway wages come to keeping pace with the increase in the cost of living? The average wage per railway employee in the year ended on June 30, 1914, was $810. The average wage per employee in January, 1920, was $132.25. This on an annual basis would amount to at least $1,587, on which basis the increase in the average compensation per employee since 1914 has been 96 per cent. It should be borne in mind also that in 1914 a large majority of employees, to earn the wage they were paid then, worked on a 10-hour basis, while in January, 1920, a large majority worked on an 8-hour basis. In other words, since 1914 a large majority of the employees have been given a reduction of approximately 20 per cent in their working hours, and employees as a whole have been given an average increase of 96 per cent in their wages.

Largely owing to the establishment of the eight-hour day, there was a very large increase in the number of railway employees during government control. The number in December, 1917, was 1,703,748, while the report of the Railroad Administration shows that in January, 1920, the number was 1,953,571, an increase of 249,823. The increase in the average earnings per employee between December, 1917, and January, 1920, was over 47 per cent, the average wage paid in December, 1917, being $89.33, and the average paid in January, 1920, being $132.25. There should be some relationship between the wages paid in any industry and the amount of product turned out per employee. The principal product of railways is freight transportation, and the amount of it produced is measured in ton-miles. In December, 1917, the number of tons moved one mile per employee was 18,758. The total amount of freight traffic handled in January, 1920, was substantially larger, but because of the large increase in the number of employees the number of tons hauled one mile per employee was only 17,798, a decrease as compared with December, 1917, of a little over 5 per cent. This decrease in the amount of freight traffic handled per employee is small, but it must be considered in the light of the fact that for years before government operation was adopted there was a constant and large increase in the amount of traffic handled per employee, this being chiefly due to improvements in the railway plant and in operating methods.

In wage hearings prior to two years ago great emphasis was placed upon the increase in the amount of freight traffic handled per employee as a reason why wages should be advanced. In the light of a decrease of over 5 per cent in the so-called "productive efficiency" of the employees and an increase of over 47 per cent in their average earnings, it is easy to see why there has been such an enormous increase in the railroad payroll. The total wages of railway employees in 1917 amounted to about $1,740,000,000. On the basis of the wages paid in January, 1920, the annual payroll would amount to about $3,010,000,000 a year. If the advance of over $1,000,000,000 for which the employees are now asking should be granted the payroll would be made approximately $4,020,000,000 annually, an increase over that of 1917 of approximately $2,280,000,000, or 130 per cent. The average annual wage of a railway employee on this basis would be about $2,100, or 160 per cent higher than in 1914.

The committee of managers representing the railroads in the hearings before the Railroad Labor Board has indicated in a statement to the board that it is appearing chiefly to give it information, since the responsibility for the advance in wages given will rest entirely on the board and any increase in wages made will have to be borne entirely by the public. Doubtless, however, the Labor Board will give great consideration to all the possible effects that may be produced before it grants the employees advances in wages anywhere near as large as those for which they are asking.

The Lesson from the Collision Statistics

A CLASSIFICATION of the 225 collisions that have been investigated by the Interstate Commerce Commission during the past four years shows them to be divided as follows:

Year ending June 30	Collisions	Signal territory: Automatic	Signal territory: Non-automatic	Train-order and time-interval system	On yard and switching tracks
1916.....	55	11	15	22	7
1917.....	54	11	10	33	..
1918.....	63	13	13	31	6
1919.....	53	18	10	19	6
Total	225	53	48	105	19

These accidents resulted in 841 deaths and 4,007 injuries. At the present time about fifty per cent of the total mileage of tracks in the United States upon which passenger trains are operated is protected by some form of block signaling, and it is on these lines that almost half of the collisions occurred. However, it must be realized that a very much larger volume of business is handled on these lines than on the unprotected lines. Other things being equal, the dangers of collision are, therefore, very much more pronounced than in the territory where trains are less frequent and the volume of business less heavy. It is, therefore, evident that block signaled lines have a considerably smaller number of collisions in proportion to the number of trains operated on them and the amount of traffic handled than lines without signals. Referring again to the collisions that occurred in block-signal territory, it will be noted that 53, or about one-half, of the 101 accidents took place on lines protected by automatic block signals. This type of protection is in service on about fifty per cent of the block signaled lines, and although the number of collisions is again about equally divided it must be realized that automatic signals are installed, at least in a majority of cases, on those lines with the heaviest traffic. Again, other things being equal, the chances of collisions on such lines are very much more pronounced than in non-automatic territories, where the traffic is less heavy. It is, therefore, evident that automatic block signaled lines have fewer collisions in proportion to train mileage than those with non-automatic signals and that the degree of protection afforded is of a higher order. During the four-year period covered by these statistics the investigations show that only four colli-

sions resulted from failures in the proper operation of the block signal system. Of these four cases, false clear signals were responsible for two collisions, one of which occurred in automatic block territory. It is, therefore, evident that as long as the signal indications are observed and acted upon, automatic block signals furnish reasonably adequate protection. But from the foregoing it is also evident that the large majority of the collisions in block-signal territory are caused by the failures of enginemen to observe and obey signal indications, and by the lack of adequate flag protection. It is to further restrict the possibility of collisions due to these causes that the automatic stop and train control are being advocated. Such installations should first be made on those lines where automatic signals are in service, and this will probably be the next step in the placing of the railways of this country on a still higher plane of safe operation.

Priority in Transportation

THE railways have applied to the Interstate Commerce Commission for exercise of the authority given it in Section 402, paragraph (15), of the Transportation Act. This paragraph empowers the Commission in time of shortage of equipment, congestion of traffic, or other emergency, to change the rules regarding the distribution of the equipment of the various carriers, to require joint or common use of terminals and to give directions for preference or priority in transportation. It is the application for the Commission to establish a system of priority in transportation which, under present conditions, is the most interesting and important.

The application by the railway companies for the exercise by the Commission of its power in regard to these matters has been construed by advocates of government control, or of the Plumb plan, as was to be anticipated, as an admission of the breakdown of private operation and, as a practical result, of the resumption of government control. What are the facts? First, even when the railways were operating to the limit of their capacity before the railway strikes occurred, they were unable to handle all the traffic that was being offered to them, in spite of the fact that in March they moved more freight than ever was moved in that month before. Second, the railway strikes came, interfered with the operation of the roads, and therefore widened the gap between the traffic being offered for movement and the traffic which could be moved.

The position in which the railways have been placed is similar to that in which many other industries have been placed. For example, the hotel business of our large cities has increased more than the capacity of the hotels. Therefore, as every traveler knows, even when the hotels are able to operate to their capacity they are obliged to turn away many guests who have asked for reservations, and practically all who have not asked for them. When, as was recently the case in Chicago, there has been a cooks' and waiters' strike, the inability of the hotels to entertain all those who have applied for entertainment has been seriously increased.

There is one important difference, however, between a concern of almost any other kind which becomes unable to handle all the business offered to it and a railway which becomes unable to handle all the business offered to it. A concern of almost any other kind can, in these circumstances, arbitrarily accept the business offered to it by some persons and turn away that offered by others. A railway, on the other hand, being engaged in a public service, is required to treat all its customers alike unless it is given a special legal dispensation by some competent public authority to discriminate between them. If one concern offers it a carload of coal and another offers it a carload of pianos for movement, in the absence of such a special dispensation as mentioned, it, as a common carrier, owes the same duty to both.

It is perfectly evident, however, that in a period such as the present, when it is impossible for the railways to handle all the traffic offered to them, the public welfare demands that they shall give priority in transportation to commodities such as coal, foodstuffs, etc., the proper distribution of which is essential to the very existence of the people, and shall move only such amounts of non-essential commodities as can be moved after the essential commodities have been moved.

The necessity for vesting in some public authority the power to authorize the railways to give preference and priority in transportation in periods such as the present was made evident during the war, and it was for this reason this authority was conferred by the Transportation Act on the Interstate Commerce Commission. It long since began to appear that in a comparatively short time the Commission would have to exercise this authority. It probably would have been desirable for it to have exercised it within the next few months even if the railway strikes had not come. Reduction by the railway strikes of the amount of traffic which the railways could handle precipitated the necessity for its exercise.

The railway managers are to be commended for having taken the initiative in asking that a system of priority be established. The transportation situation has become extremely bad, and it cannot be remedied until the railways begin to refuse to accept for movement a larger amount of traffic than they actually can handle. Under such conditions as exist at present the more traffic is allowed to be loaded the worse the congestion is made, and the less is the amount of freight actually transported.

While it will be contended that private management has "broken down," what the managements have asked the Interstate Commerce Commission to do is merely what the Railroad Administration actually did throughout the time it was in charge of the operation of the railroads. Being a government body it could and did constantly refuse to accept large tonnages of commodities which were offered to it. The simple fact is, as the *Railway Age* has pointed out many times, that the transportation facilities of the country have become totally inadequate to handling all the commodities that the industries of the country can produce, and until either the transportation facilities are increased or the amount of traffic demanding transportation is reduced, there will be need for frequent exercise by the Interstate Commerce Commission of its authority to say what traffic the railways shall move and what they shall refuse to move.

Chicago, St. Paul, Minneapolis & Omaha

THE CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA is controlled by the Chicago & North Western through the ownership of $5,380,000 preferred stock and $9,540,000 common stock. The total outstanding preferred stock is $11,260,000 and the total outstanding common stock is $18,560,000. The Omaha performs three important functions in the rounding out of the Chicago & North Western system. It gives the system its entrance into the Twin Cities, the Chicago-Twin Cities line being owned by the North Western as far as Elroy, Wis., and by the Omaha from Elroy to St. Paul. Second, it gives the system a good line from Omaha through St. Paul to Duluth and Ashland. Third, it is an important feeder for the rest of the system, with its branch lines extending out into the grain country of Iowa and Nebraska on the west, and extending into the rich dairying and farming country of western and northern Wisconsin.

The total mileage owned is 1,680, and in addition the company has trackage rights of over 70 miles of other lines. The road is conservatively capitalized, the total bonds out-

standing amounting to about $41,362,000 par, at the rate of less than $25,000 per mile.

The rental which the government paid annually for the property during government operation was $4,935,000. This permitted the company to pay 5 per cent on its common stock and to continue the regular 7 per cent dividends on its preferred stock. The property actually earned in 1919 $27,732,000 gross and the net accruing to the government after taxes was $3,101,000. This compares with $2,652,000, the federal net income in 1918.

During 1919 $675,000 was spent for additions and betterments exclusive of equipment. There was little change in the equipment account since the cost of the few new cars bought was a little more than offset by the original cost of equipment retired. The Omaha has in service now 392 locomotives, 342 passenger train cars, and 12,867 freight train cars.

When private operation was resumed on March 1, James T. Clarke, who had been president of the company during government operation, and who had been president also prior to government operation, resumed his management of the road; in his annual report he says in regard to the future: "The Transportation Act gives to the Interstate Commerce Commission complete power as to the regulation of the railroad under private ownership and with enlightened public opinion should result in greatly improved transportation facilities and establishment of railroad credit."

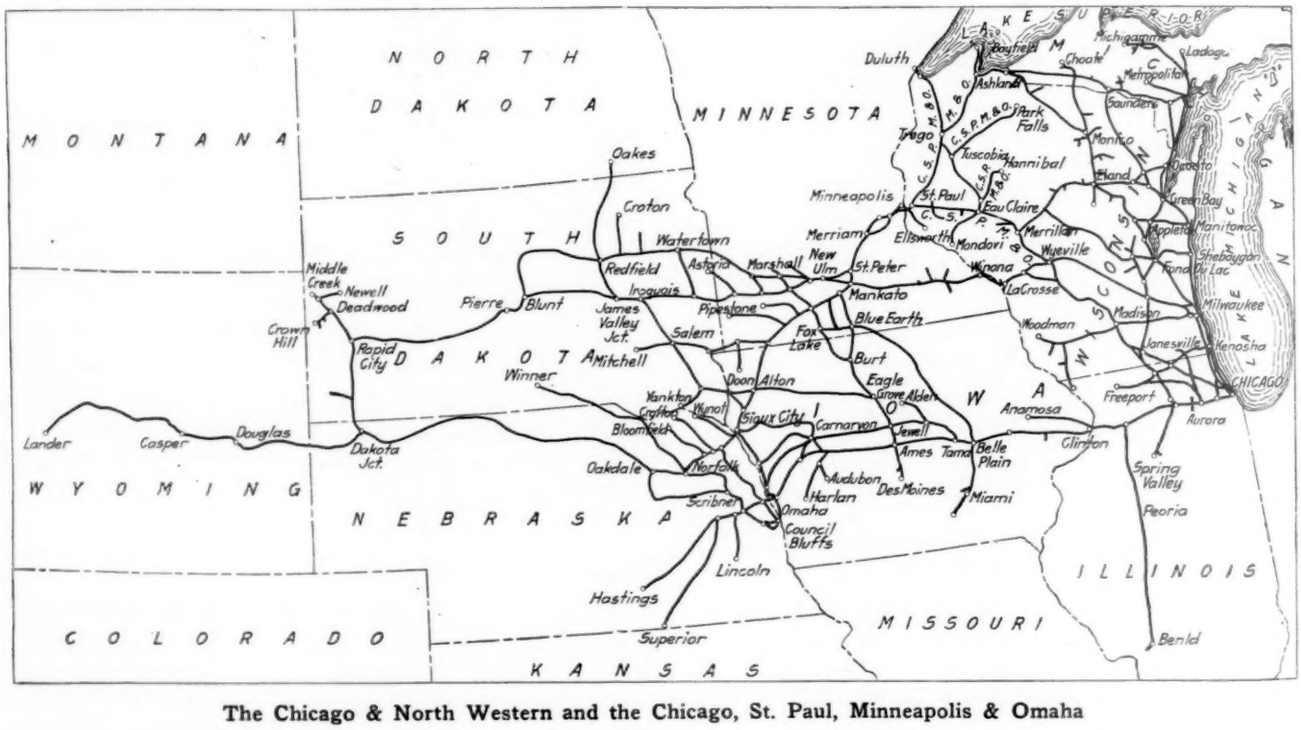
The following table shows the figures for operation of the property by the government:

	1919	1918
Average mileage operated	1,749	1,749
Freight revenue	$18,335,828	$16,897,812
Passenger revenue	7,589,482	6,238,806
Total operating revenue	27,732,018	24,829,981
Maintenance of way and structures	3,838,174	3,056,376
Maintenance of equipment	5,230,102	5,055,958
Traffic expenses	256,361	244,791
Transportation expenses	13,079,739	11,720,793
Total operating expenses	23,316,464	20,884,199
Taxes	3,101,078	2,651,912
CORPORATE INCOME ACCOUNT.		
Rental	4,934,790	4,934,790
Gross income	5,031,160	5,000,370
Net income	2,376,718	2,406,181
Dividends	1,715,986	1,715,986
Surplus	660,732	690,195

Chicago & North Western

NO OTHER ROAD in the west has had a higher credit than the Chicago & North Western. Even in 1917 the common stock paying 7 per cent dividends was selling at 124. In 1910, paying the same dividends, the common stock sold at 182; and the preferred, an 8 per cent stock, sold at 225. The history of the development of the property in the thirty years from 1887 to 1917 has been one of extraordinary conservatism based on sound business judgment and particularly successful competition through rendering shippers and travelers a very high class of service. Unlike most western roads, the extension of the property was not rapid and the steadiness of earning power has no parallels. In 1887 the Chicago & North Western operated 3,891 miles of road. Its earnings were at the rate of $6,239 per mile and its operating ratio was 57. It had outstanding at that time $41,375,000 common stock and $22,325,000 preferred, with $90,512,000 funded debt.

In 1917 increasing costs had been operative for about a year, but even in that year the operating ratio was 72.75 per cent and railway operating income amounted to $23,815,000. The mileage operated was 8,095. Operating revenues amounted to $13,500 a mile. The total outstanding stock, including both preferred and common, was $167,619,000. The outstanding funded debt was $201,951,000. Roughly, then, with an increase in outstanding securities of $215,000,000 the road had been extended from 3,891 miles of light single-track prairie lines to 8,095 miles of modern railroad with heavy rails and with double track from Chicago to Omaha, to Milwaukee and most of the way to the twin cities. It is probable that the Interstate Commerce Commission's physical valuation of the North Western will show both a cost of reproduction new and an original cost far in excess of the par value of all of the securities outstanding. A market price of from $182 to $124 for a 7 per cent common stock is indicative of the value which investors placed on the assets and permanent earning power of the company in the years from 1910 to 1917. During all



The Chicago & North Western and the Chicago, St. Paul, Minneapolis & Omaha

the years from 1887 to 1917 the Chicago & North Western stood for the best in service both in freight and passenger service. It would seem that if any road in the country can face the future with confidence, the Chicago & North Western should be that road.

The annual rental which the government paid the Chicago & North Western was $23,201,000. This left the company with a surplus in 1919 of $2,030,000 after the payment of interest charges, war taxes and 8 per cent on the preferred and 7 per cent on the common stock. The property earned far and away the largest gross in its history; the total operating revenues taken in by the government were $139,590,000, comparing with $127,296,000 in 1918, and $108,265,000 earned by the property under private operation in 1917. Increases in operating expenses, especially in transportation expenses, however, were so great that the net operating income accruing to the government in 1919 was but $14,246,000, comparing with the above mentioned $23,201,000 rental which the government paid for the property. Net in 1918 amounted to $12,273,000. Transportation expenses in 1919 amounted to $64,202,000, compared with $58,834,000 in 1918 and $43,178,000 in 1917.

A characteristic of the Chicago & North Western under private operation prior to 1917 was the extraordinary low cost per unit of both maintenance of equipment and maintenance of way combined with a quite extraordinary high standard of physical maintenance. In 1916, before the increasing cost of labor and materials had become fully operative, maintenance of way per mile cost $1,459, repairs of equipment per locomotive $2,748, per passenger train car $594, and per freight train car $78. In that year total maintenance of way amounted to $11,831,000, and maintenance of equipment amounted to $15,087,000. In the year 1919, under government operation, maintenance of way totaled $20,696,000, and maintenance of equipment $29,687,000.

Some of the important elements in the great financial success which the North Western had made prior to 1917 were its ability to compete successfully with other roads serving the same territory, its ability to secure as high or higher standard of maintenance with the expenditure of less money than most of its competitors, and to render a particularly satisfactory transportation service at a lower train mile cost than the majority of western roads. The traffic relations of the Chicago & North Western were particularly valuable. Its relations with the New York Central Lines on the east and with the Union Pacific on the west made it a connecting link between one of the best of the western transcontinentals, so-called, and one of the two strongest eastern trunk lines. Its relations with its local shippers also were particularly fortunate.

The country which the North Western serves is rapidly changing from a newly developed granger country into a rich, settled, stable, agricultural country with ample capital investment. Thus, in Iowa, across which the North Western has a double track line touching the wealthiest and most fully developed parts of the state and within which the company has in all 1,630 miles of road, farm land sells from $200 to $600 an acre now. The farms are well stocked with ample buildings and machinery. In South Dakota, in which the North Western has 1,063 miles of line, wheat lands are being made to yield 30 to 50 bushels of wheat; and in Nebraska, in which the North Western has 1,102 miles, not only are the portions of the state where rainfall is ample yielding heavy crops of corn and the staple corn product, hogs, but also dry farming is proving thoroughly successful and the dairying industry is rapidly growing. It is hardly conceivable that with any solution of the railroad problem worked out which provides for private operation a road like the North Western will fail to be prosperous.

The following table shows the earnings of the property under government operation in 1919 compared to 1918. This is not a corporate income account:

	1919	1918
Average mileage operated	8,090	8,090
Freight revenue	$92,084,613	$87,630,795
Passenger revenue	35,213,606	28,000,861
Total operating revenue	139,589,915	127,295,678
Maintenance of way and structures	20,696,215	19,492,620
Maintenance of equipment	29,687,410	26,834,170
Traffic expenses	879,110	951,457
Transportation expenses	64,202,497	58,833,776
Total operating expenses	119,579,386	109,498,572
Taxes	5,752,459	5,497,481
Operating income	14,245,619	12,272,956

Corporate Income Account

	1919	1918
Rental	$23,201,016	$23,201,016
Gross income	25,493,023	25,463,677
Interest, war taxes, etc.	11,510,441	11,092,446
Net income	13,982,582	14,371,231
Dividends	11,952,275	11,952,275
Surplus	2,030,307	2,418,956

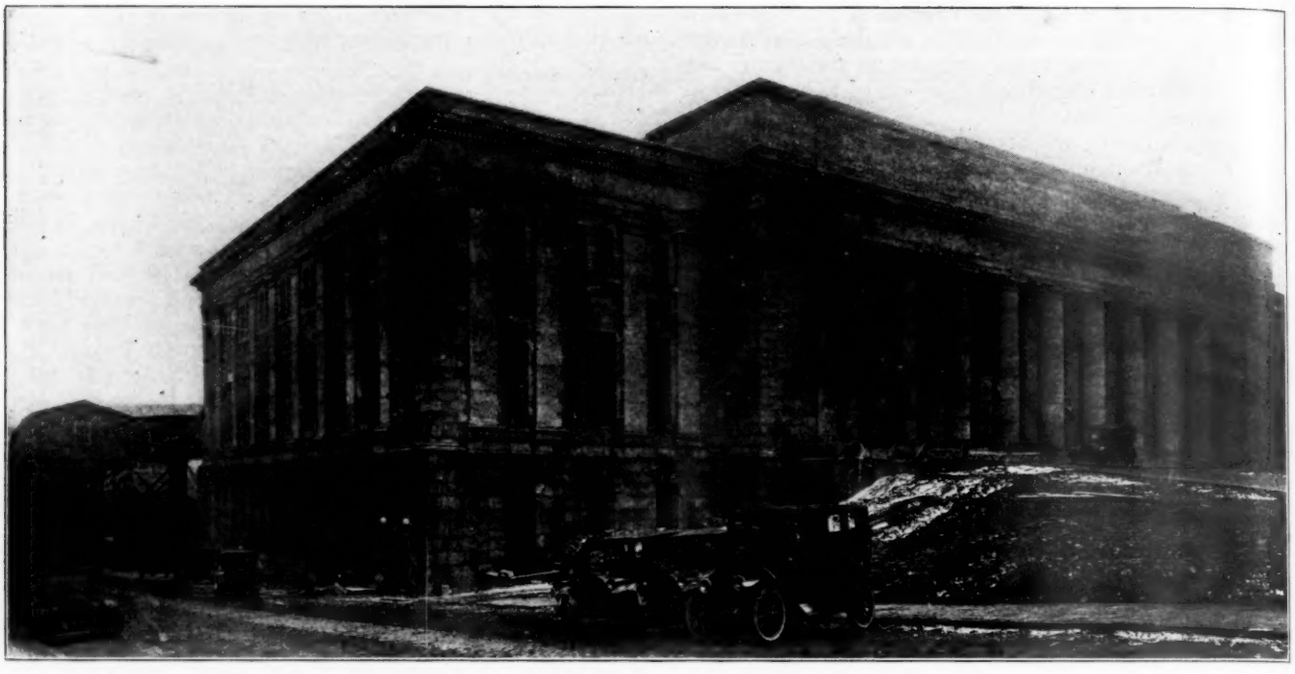
New Books

The Building Estimators' Reference Book, by Frank R. Walker, 2,831 pages, 4½ in. by 6½ in. Bound in flexible leather. Published by the Frank R. Walker Company, 168 North Michigan Avenue, Chicago, Ill.

This book is essentially a reference book for the use of contractors and estimators engaged in estimating the cost of and in constructing all types of modern buildings. The first part of the book, which contains 20 chapters, is devoted to the making of the proper allowance for overhead expenses and general conditions. All phases of this are carefully worked out in a manner that makes them available for all classes of work. The remainder of the book treats with the subjects of excavation and back filling; concrete piles, foundations, floors, paving and other forms of reinforced concrete construction and the means of waterproofing such work; brick masonry, cut stone and rubble stone work, etc.; timber and general carpentry work, floor work and exterior finishes; sheet metal work, roofing and painting, etc., and special iron and steel work. The subjects of material and labor costs have been arranged throughout the book in such a form as to be adaptable to the varying local conditions encountered.

American Civil Engineers' Handbook, Mansfield Merriman, editor-in-chief, fourth edition, 1920, 4 in. by 7 in., 1,955 pages, illustrated, bound in flexible fabrikoid. Published by John Wiley & Sons, Inc., 432 Fourth avenue, New York.

The fourth edition of this handbook constitutes a revision and enlargement of the third edition, as indicated by an increase from 1,580 to 1,955 pages. The first edition was published in 1911, and the total issue to date is 36,000. The particular change of interest to railway engineers in the new edition is a rewriting of Section 3 on steam railroads by Fred Asa Barnes, professor of railroad engineering, Cornell University. In the third edition this section combined railroad and highway engineering under the authorship of Walter Loring Webb. In the new edition these two subjects are treated separately, the latter being covered in a new section by Arthur H. Blanchard. Another new section in the present edition is one of 54 pages on electric railways by William A. Del Mar, the subject being covered largely from the standpoint of the street railway and interurban line rather than the electrified steam railroad. Materials of construction, covered in Section 4, has been re-written by Herbert F. Moore and the section on steel structures by Frank H. Constant. The material of interest to the railway engineer in this valuable book is not limited to the sections on surveying, curves and earth work, and railway engineering and operation, covering the first 252 pages, for there is much of value for them in other sections covering structures, materials of construction, hydraulics, waterworks, sanitation, drainage, etc., which, for the purpose of logical classification, are treated under independent headings.



Exterior View of the New St. Paul Station Head House from Waconta Street near Fourth Street

First Unit of St. Paul Union Station Completed

Design of New Head House Structure Takes Advantage of the Topography of the Site Selected

On Monday, April 5, the first unit of the new union station at St. Paul, Minn., was placed in service. Its formal opening to the public preceded this date by two days since the people of St. Paul were permitted to visit and inspect the building on April 3 and 4. The completed portion of the structure is the head house, a structure of monumental proportions and classic design, the completion of which means much to the people of St. Paul, who have been waiting for new passenger station facilities since October 3, 1913, when the head house of the old union station was destroyed by fire. The completion of this first unit of the new station project will be followed by the construction of the remaining portions, including the station tracks, train sheds, general waiting room, baggage, mail and express accommodations, etc., which will be finished in units according to a program extending over four years.

The general layout of the new station project, of which the structure just completed forms the most conspicuous feature, was described in the *Railway Age Gazette* of May 18, 1917, page 1041. When completed the new station will embrace all of the property occupied by the old terminal and considerable space in addition. The old station faced on Sibley street, some 200 ft. south of Third street, and the property which it occupied extended east from that street parallel to Third street. This area was entirely inadequate for the requirements of the new terminal which provides for a station track layout occupying all of the old site and the land between Third street and the old north property line in addition, or a total width of 400 ft. Because of this it was necessary to place the head house on a new site, and the entire block bounded by Third, Fourth, Sibley and Wacouta streets was acquired for this purpose. This plan embodies one very important advantage in that the construction work could be carried on within this area without interfering in any way with the operation of the existing station facilities. Consequently the head house was the first portion of the station to be built.

Station Will Serve Nine Railroads

This station is built for the combined service of the nine railroads entering St. Paul, namely, the Great Northern; the Northern Pacific; the Chicago, St. Paul, Minneapolis & Omaha; the Chicago, Milwaukee & St. Paul; the Chicago Great Western; the Chicago, Burlington & Quincy; the Minneapolis, St. Paul & Sault Ste. Marie; the Minneapolis & St. Louis and the Chicago, Rock Island & Pacific. The present schedules of these roads show 142 trains departing and 140 trains arriving at this station each 24 hours. The distribution of this service between the several roads is as given in the table below:

	Departing	Arriving
C., B. & Q.	10	10
C., G. W.	14	14
C., M. & St. P.	24	24
C., R. I. & P.	8	8
C., St. P., M. & O.	15	15
G. N.	16	16
M. & St. L.	6	6
M., St. P. & S. S. M.	17	17
N. P.	32	30

The average number of people handled daily is 20,000, of which a large portion are through passengers. Further data on the traffic handled in this terminal are indicated by the statistics on passengers, baggage, mail, etc., for the calendar year 1919, given below:

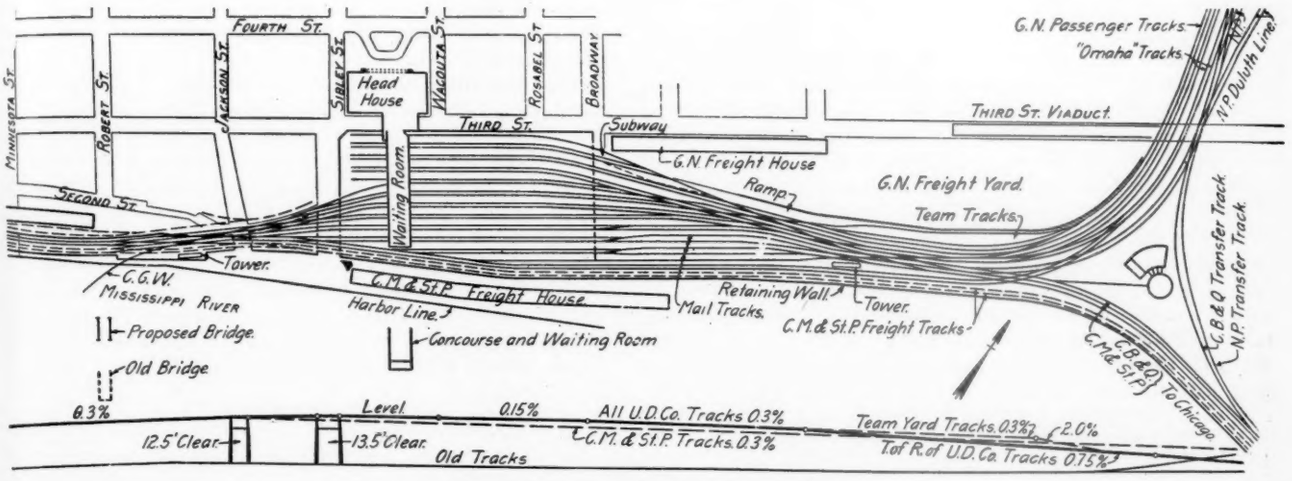
Number of tickets sold, 1919	1,069,621
Average daily sale of tickets	2,944
Ticket revenue	$4,408,849.55
Average number of pieces of baggage handled daily	7,170
Average number tons of mail handled daily	746
Number of train and engine movements	206,006

The station is being built by the St. Paul Union Depot Company, a terminal corporation, the stock of which is

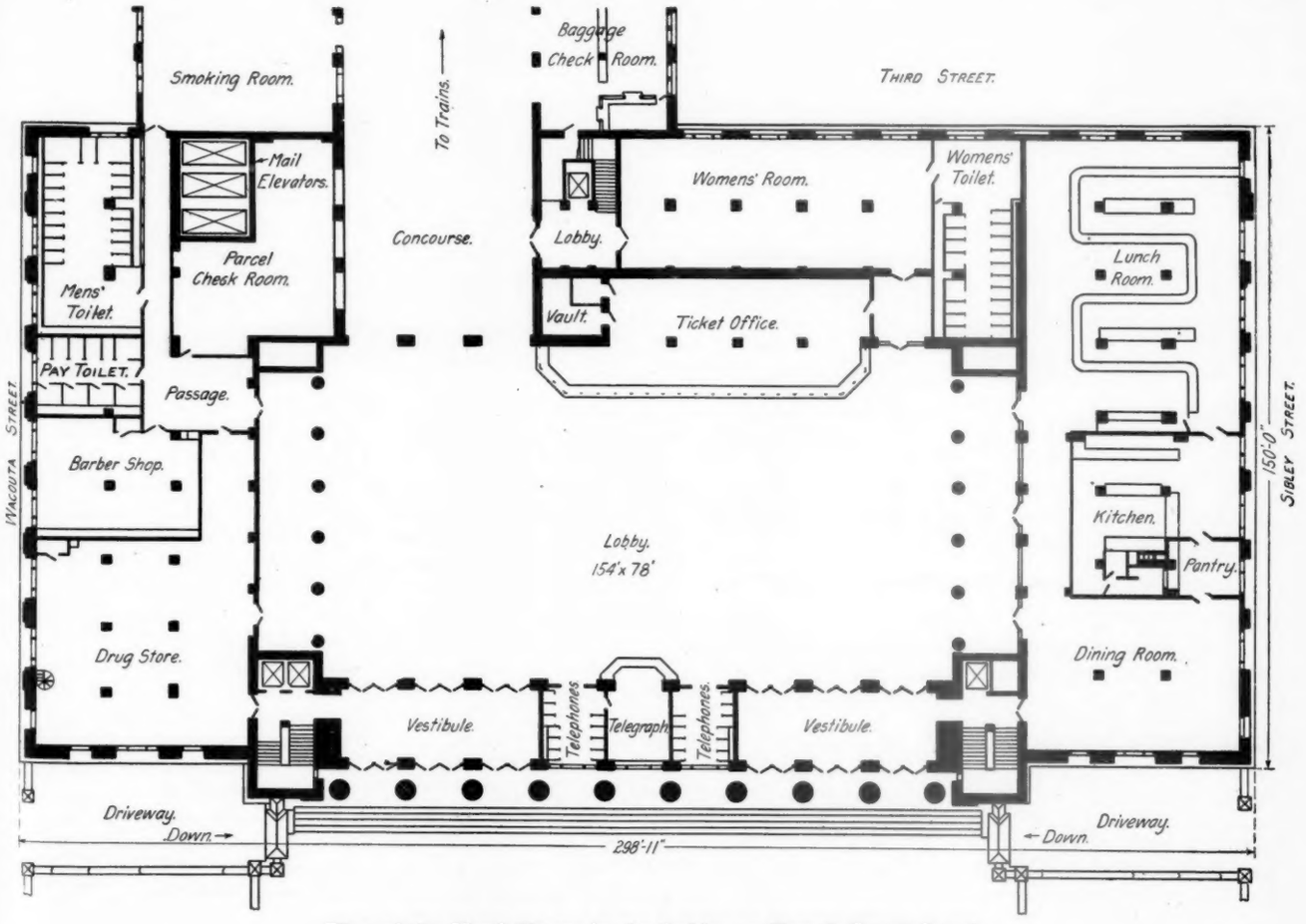
shared equally by the nine roads. The execution of the work is under the general direction of an executive committee consisting of five members of the board of directors, viz.: Edmund Pennington, chairman; Ralph Budd, president of the Great Northern; J. T. Clark, president of the Chicago, St. Paul, Minneapolis & Omaha; C. W. Bunn, vice president of the Northern Pacific, and E. D. Sewall, vice president of the Chicago, Milwaukee & St. Paul. Advisory to the executive committee is an engineering committee, consisting of Ralph Budd, chairman; Samuel Felton, president, Chicago & Great Western; C. F. Loweth, chief engineer, Chicago, Milwaukee & St. Paul; and George Hand, assistant to the president, Chicago & Northwestern.

The station company handles the passenger business and maintains and operates a coach cleaning yard, but does not provide locomotive terminal facilities. The station company will operate the parcel check, but all news stand, restaurant and lunch counter concessions have been let to the Union News Company.

The head house is a structure 300 ft. by 150 ft., the pri-

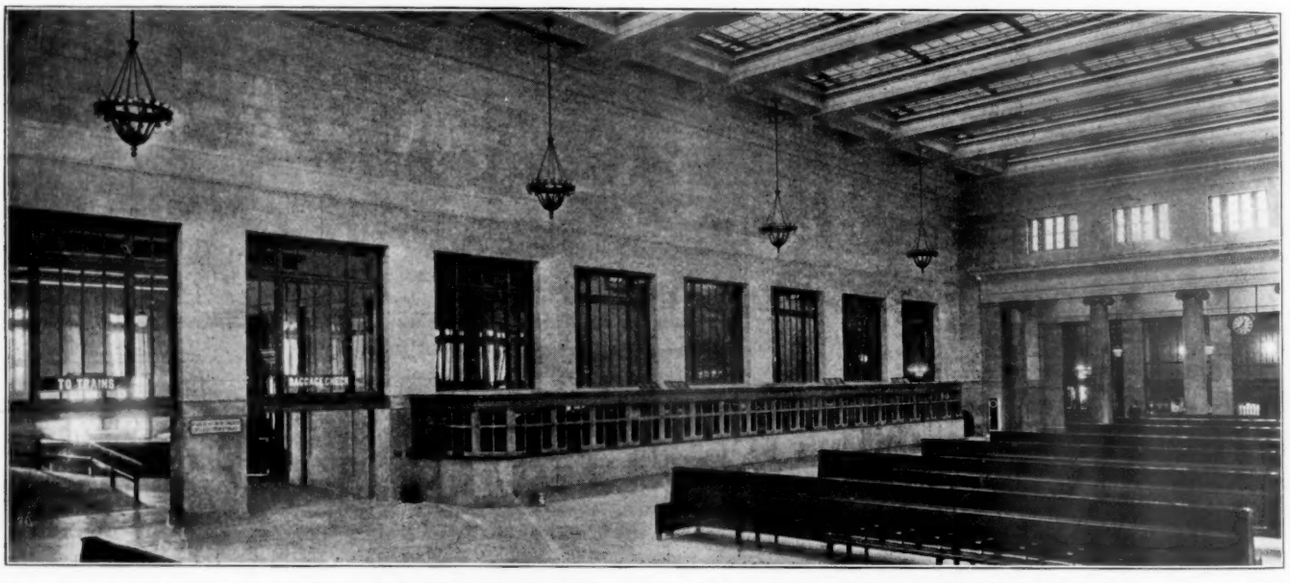


Track Layout and General Location



Plan of the Head House in the Lobby on Fourth Street Level

mary object of which is to house the business lobby or ticket concourse, a room 180 ft. by 80 ft., located centrally in the structure. The arrangement is simple and obvious. Passengers enter the building through duplicate doorways in a splendid Doric facade on the north or Fourth street side, traverse vestibules 16 ft. deep, and emerge immediately into the business lobby. On the left, directly opposite, is the entrance to the train concourse or the future main waiting room. On the right, directly opposite, is a ticket office with 18 ticket windows. To the right along the west side of the building is a restaurant and lunch room, while the other minor facilities are distributed conveniently surrounding the walls of the lobby. A drug store and other shops are housed along the east side. The women's waiting rooms are located in the south side of the structure behind the ticket offices. A large barber shop, parcel check room and men's section are at the left end of the lobby. The duplicate main entrances each have a total opening 48 ft. wide, divided into three doorways by the massive stone columns of the facade. Between these two entrances, in a space equal to the depth of the vestibules, the telephone booths, telegraph office and information



View of the Lobby Looking Toward Southwest, Showing Ticket Offices in Center, Entrance to Train Concourse on Left and Restaurant and Lunch Room on Right

bureau have been located. Pneumatic tube service affords direct and prompt communication between the ticket office and the auditor's office on an upper floor.

Dignified Architectural Treatment

Both the exterior and interior of the building are of applied classic design, the exterior in gray stone and the interior largely marble. The floor of the business lobby, the walls, wainscot, counters and free standing columns are all of Tennessee marble. All woodwork is oak with a dull finish. Being surrounded on all four sides by rooms or vestibules, the lobby of necessity receives natural lighting through clearstory windows and nine large skylights in the ceiling. The efficiency of this lighting has been largely increased through the use of a saw-tooth roof construction over the skylights, each transverse unit of the skylight being covered by one unit of the saw tooth roof. This is not apparent, however, from the interior of the room. At night the suggestion of the natural skylighting is carred out by electric lights placed in the space between the flat skylights and the saw-tooth roof. The real artificial illumination of the room, however, is accomplished by large electroliers distributed as shown in the photos. An interestng feature of the facilities is an installation of eight Howard synchronized clocks, more of which will be added as the station is completed.

The arrangement of the building was controlled very largely by the contour of the ground surface. The ground drops off very abruptly toward the river on the south, Third street being a full story below the level of Fourth street. Consequently, with the main floor of the building at the level of Fourth street, the floor below has frontage on Third street. Approximately two-thirds of the Third street level is used as a postal sub-station, while the north third toward Fourth street is used for accommodations for the station employees, including a cafeteria seating 186 persons, storage space for the drug store, etc. The space directly under the Fourth street entrance to the building has been arranged as a taxi-cab entrance to the station, to which all taxi-cabs will be directed, with ramps leading to Sibley street on the west and Wacouta street on the east. The taxi-cab entrance is also arranged as a continuous corridor extending the full length of the building so as to afford entrance for pedestrians from both Wacouta street and Sibley street. Carriages other than taxi-cabs will be permitted to drive to the main entrance on the Fourth street level. Communication from the taxi-cab entrance to the main floor of the building is afforded by staircases and elevators to the left and right.

The mechanical equipment is in a basement on a level below that of the Third street level just described. This basement level also is arranged to provide space for work shops and facilities for immigrant passengers. Accommodations for their comfort are unusually complete, including bathrooms, laundries, kitchens, etc.

The new structure provides a limited amount of office space, it having been decided to provide accommodations only for the Pullman Company and the officers of the station company. These occupy a second or mezzanine floor surrounding the business lobby on the east, west and south sides, except for four rooms to serve as hospitals for men, women and children, and a play room.

The building is of reinforced concrete construction. The roof consists of reinforced concrete slabs covered with a tar and felt waterproofing finished in flat tiles set in cement with expansion joints at intervals. The building is provided with a complete system of ventilation, the air being taken in through two inlets on the roof, passing down into the basement where it is washed before passing into the various rooms of the building. Exhaust fans on the roof also aid

in making the ventilating system positive. All heat and light are purchased from a local public utility company. Water for all purposes is obtained from an artesian well on the site.

Relation to the Completed Terminal

A description of the new head house for the St. Paul station is not complete without an account of its relation to the rest of the terminal, which will be completed according to a program carrying the work through the latter part of 1923. The tracks of the present station layout, which is a combined through and stub station, are at such a level that the through tracks cross Sibley street at grade. The new plan contemplates the raising of these tracks approximately 17 ft. so that Sibley street will pass under the tracks. However, this still leaves the station tracks sufficiently below the level of the floors in the business lobby of the new head house so that a waiting room with a floor level only 2½ ft. above that of the business lobby may be placed directly over the tracks. This waiting room will be connected with the lobby in the headhouse by a corridor 45 ft. wide spanning Third street by means of a driveway extending west from Broadway.

The Work Will Be Completed in Stages

After the old station building was destroyed by fire in 1913, arrangements were made to provide waiting rooms in an old warehouse building fronting on Third street some distance east of Sibley street. This was connected with the station tracks by a temporary train concourse consisting of a frame building constructed on a viaduct over the tracks with stairways to the various platforms. This temporary concourse has been connected with the head house by an enclosed overhead bridge and all the old buildings fronting on Third street which occupy any portion of the new track layout have been removed. This makes it possible to provide for six of the tracks of the new layout without disturbing any of those of the old station yard. This much of the work will be completed in 1920. In 1921, after the first six tracks have been placed in service, six tracks of the old facilities will be torn out and replaced by six more tracks on the new level. These 12 northernmost tracks of the new

View of the Lobby Looking Toward the Fourth Street Entrance

street. Communication between this waiting room, which will be about 80 ft. wide and 400 ft. long, will be afforded by vestibules and stairways along the east side of the room descending to the tracks. On a floor above the north 70 ft. of the waiting room and over the corridor between the waiting room and the lobby, a large space will be provided for the railway post office, which will handle the combined business now carried on in both St. Paul and Minneapolis. Below the north end of the waiting room underneath the track level, a large basement will be provided for baggage and mail, while a similar basement extending east along the south side of Third street will afford space for the express companies and locker rooms for train crews.

These basement facilities will be served from the track level by truck elevators either opening directly into the working space or connected with it by means of short lengths of tunnels extending under the more remote tracks. As a large amount of mail will need to be handled between the basement mail room and the railway post office on the upper floor level, three automatic elevators of 5,000-lb. capacity have been provided exclusively for this service. Owing to the inclined grade of Sibley street, the baggage and mail basement is afforded direct communication with the street level, while the express rooms along Third street are connected with the terminal will occupy the space directly over the rooms provided for baggage, mail, express, etc., and will be supported on a reinforced concrete flat slab construction. In 1922, six more of the old station tracks will be removed and replaced by the third set of six tracks on the new level, while in 1923 the last of the old tracks will be removed to make room for the last four of the 22 tracks provided for in the new plan. The tracks to be installed in 1922 and 1923, being beyond the limits of the basement space, will be supported on sand filling except where provision is necessary for the baggage and express tunnels. According to this plan of construction, the track capacity will at no time be less than that of the present layout. The waiting room will be built in sections over the track space in substantially the same units as would be determined by the completion of the new facilities underneath.

Two incidental problems encountered in connection with the raising of the track structure to the new level concern the raising of the Roberts street bridge to a sufficient elevation to provide headroom over the tracks and the raising of the Chicago Great Western bridge so as to meet the station tracks at the new level. When the Great Western structure was rebuilt some six or seven years ago, this feature was taken into account in providing a vertical lift draw span.

The entire station project is being carried out under the direction of W. C. Armstrong, chief engineer, with G. H. Wilsey, structural engineer in charge of design, and O. L. Hoebel, assistant engineer in charge of construction. Charles S. Frost, Chicago, is the architect, and was represented on the ground by Lambert Bassindale. The work was handled under contract by Morris, Shepard & Dougherty, and the George J. Grant Construction Company, W. R. Powrie, being general superintendent for the contractors.

Average Pay of Railroad Employees 1915-1920

THE BUREAU OF RAILWAY ECONOMICS has issued a table showing the average compensation received, since 1914, by the different classes of employees on Class I railroads, and the same is here shown. The data for 1915 are from reports of the Interstate Commerce Commission, covering all Class I railways; and those for 1917, 1919 and 1920 from reports of the United States Railroad Administration, covering Class I railways under federal control.

The averages for the calendar year 1917 and the calendar year 1920 are based on returns for December, 1917, and January, 1920, respectively, multiplied by twelve. Averages for the calendar year 1919 were obtained from a compilation of the monthly reports of "Employees and Their Compensation," issued by the Railroad Administration. Because of the fact that monthly reports subsequent to April, 1919, exclude compensation applicable to previous months (i. e., back pay, amounting to approximately $28,000,000) the total of the compensation shown on the statements for the individual months January-December, 1919, does not represent the total payroll for 1919: hence the averages here shown are conservative, being below the actual figures. On April 12, 1920, in his testimony before the Congressional committee, Mr. Hines estimated the number of employees of Class I railways under Federal control at 1,891,607 for 1919, and their aggregate 1919 compensation at $2,744,-000,000, on which basis the average annual compensation per railway employee for 1919 amounts to $1,451, instead of $1,436 as here shown. The distribution of this fifteen-dollar excess per employee throughout the various classes of employees is impracticable, but the conservatism of the present averages is evident. For the same reason the 1920 figures are probably below actual.

The Railroad Administration's report of compensation (and hours worked) in January, 1920, was given in the *Railway Age* of May 14, page 1422.

AVERAGE ANNUAL COMPENSATION PER RAILWAY EMPLOYEE

COMPILED BY THE BUREAU OF RAILWAY ECONOMICS, COVERING CLASS I RAILWAYS FOR 1915, 1917 AND 1919; AND 1920 ESTIMATED

Class of employees	Fiscal year 1915 (average)	Calendar year 1917 (average)	Calendar year 1917 (Dec. basis)	Calendar year 1919 (average)	Calendar year 1920 (Jan. basis)	Per cent of increase, 1919 over: Fiscal year 1915	Calendar year 1917 (average)	Calendar year 1917 (Dec. basis)	Per cent of increase 1920 (Jan. basis) over calendar year 1919
General officers	$4,528	$4,558	$4,683	$4,317	$4,313	d 4.7	d 5.3	d 7.8	d 0.1
Division officers	2,013	2,099	2,139	2,944	2,989	46.2	40.3	37.6	1.5
Clerks	832	932	955	1,349	1,410	62.1	44.7	41.3	4.5
Messengers and attendants	434	514	531	855	888	97.0	66.3	61.0	3.9
Assistant engineers and draftsmen	1,121	1,145	1,257	1,707	1,857	52.3	49.1	35.8	8.8
Maint. of Way and Structure foremen	1,107	1,197	1,283	1,780	1,913	60.8	48.7	38.7	7.5
Section foremen	772	886	939	1,314	1,381	70.2	48.3	39.9	5.1
General foremen—M. E. department	1,533	1,660	1,628	2,975	3,043	94.1	79.2	82.7	2.3
Gang and other foremen—M. E. department	1,167	1,352	1,467	2,358	2,419	102.1	74.4	60.7	2.6
Machinists	1,030	1,394	1,513	1,763	2,036	71.2	26.5	16.5	15.5
Boiler makers	1,076	1,425	1,532	1,831	2,128	70.2	28.5	19.5	16.2
Blacksmiths	927	1,258	1,331	1,664	1,920	79.5	32.3	25.0	15.4
Masons and bricklayers	789	932	971	1,376	1,439	74.4	47.6	41.7	4.6
Structural ironworkers	898	1,014	1,034	1,630	1,662	81.5	60.7	57.6	2.0
Carpenters	768	940	980	1,430	1,560	86.2	52.1	45.9	9.1
Painters and upholsterers	758	951	1,031	1,463	1,657	93.0	53.8	41.9	13.3
Electricians	941	1,030	1,123	1,721	1,943	82.9	67.1	53.3	12.9
Air-brakemen	812	1,086	1,207	1,623	1,946	99.9	49.4	34.5	19.9
Car inspectors	887	1,140	1,272	1,780	2,101	100.7	56.1	39.9	18.0
Car repairers	751	994	1,053	1,529	1,752	103.6	53.8	45.2	14.6
Other skilled laborers	855	1,065	1,140	1,620	1,858	89.5	52.1	42.1	14.7
Mechanics' helpers and apprentices	607	822	890	1,173	1,354	93.2	42.7	31.8	15.4
Section men	454	601	642	938	960	106.6	56.1	46.1	2.3
Other unskilled laborers	560	695	765	1,062	1,119	89.6	52.8	38.8	5.4
Foremen of construction gangs and work trains	1,016	1,031	1,221	1,530	1,647	50.6	48.4	25.3	7.6
Other men in construction gangs and work trains	516	623	711	990	1,132	91.9	58.9	39.2	14.3
Traveling agents and solicitors	1,495	1,642	1,851	2,115	2,146	41.5	28.8	14.3	1.5
Employees in outside agencies	980	1,066	1,437	1,718	1,749	75.3	61.2	19.6	1.8
Other traffic employees	960	1,330	1,502	2,076	2,084	116.3	56.1	38.2	0.4
Train dispatchers and directors	1,606	1,802	1,868	2,717	2,776	69.2	50.8	45.4	2.2
Telegraphers, telephoners and block operators	800	917	967	1,543	1,617	92.9	68.3	59.6	4.8
Telegraphers and telephoners oper. interlockers	822	957	1,026	1,614	1,677	96.4	68.7	57.3	3.9
Levermen (non-telegraphers)	731	852	891	1,496	1,527	104.7	75.6	67.9	2.1
Telegrapher, clerks	797	892	963	1,535	1,592	92.6	72.1	59.4	3.7
Agent, telegraphers	828	949	1,050	1,675	1,708	102.3	76.5	59.5	2.0
Station agents (non-telegraphers)	937	1,038	1,108	1,654	1,742	76.5	59.3	49.3	5.3
Station masters and assistants	1,095	1,292	1,309	1,883	1,918	72.0	45.7	43.9	1.9
Station service employees	605	710	777	1,120	1,157	85.1	57.7	44.1	3.3
Yardmasters	1,584	1,802	1,896	2,907	2,924	83.5	61.3	53.3	0.6
Yardmasters' assistants (not yard clerks)	1,428	1,705	1,632	2,523	2,545	76.7	48.0	54.6	0.9
Yard engineers and motormen	1,528	1,790	1,783	2,063	2,349	35.0	15.3	15.7	13.9
Yard firemen and helpers	916	1,093	1,106	1,468	1,712	60.3	34.3	32.7	16.6
Yard conductors (or foremen)	1,358	1,584	1,556	1,877	2,085	38.2	18.5	20.6	11.1
Yard brakemen (switchmen or helpers)	1,169	1,327	1,342	1,671	1,872	42.9	25.9	24.5	12.0
Yard switch tenders	720	846	905	1,339	1,481	86.0	58.3	48.0	10.6
Other yard employees	622	666	728	1,109	1,201	78.3	66.5	52.3	8.3
Hostlers	976	1,245	1,330	1,595	1,751	63.4	28.1	19.9	9.8
Enginehouse men	684	835	922	1,278	1,329	86.8	53.1	38.6	4.0
Road freight engineers and motormen	1,846	2,107	2,281	2,611	3,124	41.4	23.9	14.5	19.6
Road freight firemen and helpers	1,136	1,273	1,370	1,806	2,168	59.0	41.9	31.8	20.0
Road freight conductors	1,589	1,854	1,967	2,288	2,664	44.0	23.4	16.3	16.4
Road freight brakemen and flagmen	1,036	1,202	1,278	1,709	1,999	65.0	42.2	33.7	17.0
Road passenger engineers and motormen	2,141	2,232	2,418	2,873	3,129	34.2	28.7	18.8	8.9
Road passenger firemen and helpers	1,287	1,353	1,498	2,052	2,281	59.4	51.7	37.0	11.2
Road passenger conductors	1,850	1,966	2,058	2,542	2,730	37.4	29.3	23.5	7.4
Road passenger baggagemen	1,049	1,175	1,236	1,821	1,962	73.6	55.0	47.3	7.7
Road passenger brakemen and flagmen	1,026	1,093	1,188	1,703	1,816	66.0	55.8	43.4	6.6
Other road train employees	840	817	897	1,366	1,510	62.6	67.2	52.3	10.5
Crossing flagmen and gatemen	476	535	579	949	945	99.4	77.4	63.9	d 0.4
Drawbridge operators	666	761	839	1,190	1,168	78.7	56.4	41.8	d 1.8
Floating equipment employees	775	928	1,111	1,619	1,769	108.9	74.5	45.7	9.3
Policemen and watchmen	713	896	941	1,372	1,452	92.4	53.1	45.8	5.8
Other transportation employees	634	845	934	1,200	1,312	89.3	42.0	28.5	9.3
All other employees	610	663	699	993	1,033	62.8	49.8	42.1	4.0
Total	$830	$1,004	$1,078	$1,436	$1,587	73.0	43.0	33.2	10.5

The Seventh National Foreign Trade Convention

The Effect of Being a Creditor Nation, Theme of Record-Breaking Meeting at San Francisco

AN ATTENDANCE of some 2,300 accredited delegates—500 more than the best previous attendance at a meeting of this kind—typified the interest that was shown in the seventh National Foreign Trade convention held at San Francisco May 12 to 15. Included in the list of delegates from the United States were the leaders of American business thought, while delegates were also present from a large portion of the other countries of the globe.

The theme of the convention was "The Effect of Being a Creditor Nation." The argument at the sessions, therefore, was not so much how to increase the foreign trade of the United States, but rather how to maintain the enormous trade we now have and how to remove the handicaps that at present exist in carrying it on. Along this line reference was made to the lack of government assistance, many speakers bringing out the point that the laws of the United States so handicapped the American exporter in many cases as to prove of positive assistance to our competitors in other nations. The need of more flexibility in American shipping, the necessity of better parcel post service to other countries, the urgent desirability of increasing the cable lines across the Pacific were among the important points brought out by various speakers.

Considerable attention was also given to the present exchange situation and to the fact that our foreign trade cannot continue in its present volume unless there are considerable increases in imports to balance our enormous exports. As Captain Robert Dollar put it in his speech of welcome at the first session "True commerce is to buy and sell. A great many people think that commerce is to sell only. We must buy. Did it ever occur to you that it would cost twice as much to ship your commodities from this country and bring back ships with empty bottoms? By bringing back commodities, half the freight is paid. Therefore, true commerce is to bring cargoes both ways. The balance of trade would necessitate that and if we do not have the correct balance of trade we have got to export gold and silver."

Naturally, inasmuch as the convention was held on the Pacific coast, many speakers discussed the new importance of San Francisco, Seattle, and other Pacific ports as gateways to China, Japan, the Philippines, etc. The impression sought to be made was that the trade with these countries has hardly begun. Captain Dollar, however, was the only speaker who ventured to prophesy that before many years the center of the world's commerce would be on the Pacific coast, as it is now in New York or as it was formerly in London.

Railroad Problem Discussed

For the first time at a National Foreign Trade Convention, papers were read on the problem of the railroads. William Sproule, president of the Pacific Lines of the Southern Pacific Company, read a paper on "The Railroads and the Foreign Trade," before the second general session on May 12, which was enthusiastically received. An abstract of it will be found on another page of this week's issue. In addition to that one of the group sessions—Group III on the evening of May 12—was devoted entirely to "Transportation and Communication." R. M. Calkins, vice-president of the Chicago, Milwaukee & St. Paul, presided and also read a paper on "Development of Export and Import Transportation," an abstract of which will be found below.

The business press also came in for recognition at the convention. Group Session VIII held on the evening of May 13 was devoted to "Foreign Trade and the Press" and James H. McGraw, president of the McGraw-Hill Company, made an address entitled "The Service of the Business Press."

An Outline of the Subjects Covered

The sessions of the convention were held in the Civic Auditorium soon to be made famous by the National Democratic Convention which will be held there next month. In accordance with the usual custom there were general and group sessions, including five of the former and 14 of the latter. There were also two luncheons at which particular problems were discussed and a banquet was held on Friday evening, May 14.

The topics of the group sessions were as follows: I Fundamentals of Our Foreign Trade; II Exports and Imports; III Foreign Trade Policies; IV The Merchant Marine, and V National Program for Foreign Trade.

The 14 group sessions discussed the following subjects: I Education for Foreign Trade; II Financing Foreign Trade; III Transportation and Communication; IV Foreign Trade Advertising.

V Direct Selling Abroad; VI Banking Service to Foreign Trade; VII Trade with the Orient; VIII Foreign Trade and the Press; IX Foreign Credits and Credit Information; X American Trade with Russia; XI Foreign Trade Information.

XII Practical Problems of the Export Manager; XIII Webb Law in Operation, and XIV Pacific Problems.

Railway Supply Man Presides

The convention was called to order by James A. Farrell, president of the United States Steel Corporation and chairman of the National Foreign Trade Council. Captain Robert Dollar, head of the Robert Dollar Company and chairman of the Pacific Coast Committee of the National Foreign Trade Council, made the address of welcome, after which Alba B. Johnson, president of the Railway Business Association, was elected president of the convention to preside over its deliberations.

Inasmuch as nearly 75 papers were read at the convention, it is impossible to refer to all of them. The following, however, will give abstracts of some of the papers of interest to railway or railway supply men.

The Relation of Our Industrial Capacity to Our Foreign Trade

By James A. Farrell

When we are confronted by the fact that the imports and exports of the United States for the calendar year 1919 amounted to nearly 12 billions of dollars—in round figures $11,800,000,000—as against $4,258,000,000 for the year before the war, it would appear to be superfluous to insist that we must become a foreign trading nation. The figures would seem to indicate that, consciously or unconsciously, we were already there. But figures must be interpreted with due regard to the facts for which they stand, if their true meaning is to be extracted.

Even when measured solely by the volume of expansion, the rate of progress has been much greater than that established during any preceding five years. But the advance

made in the agencies and instruments of production has been on an entirely unexampled scale, and the conclusion is brought home with an entirely new emphasis that American industrial development has reached the stage when the United States must become, in all that the words imply, a foreign trading nation. That involves the further requirement that the American people generally must understand their personal relation to the international commerce of the country as a whole; they must realize that it is not only those directly connected with foreign trade, but every inhabitant of the land, wherever located and however occupied, that shares in its benefits as bears a direct responsibility for its continued success. In other words, the whole people must be prepared to join in giving sustained and intelligent support to the efforts of those who, whether in government employ or in private enterprise, are charged with the obligation of directing and maintaining this increasingly important factor in our common life.

The census taken this year will disclose the full extent of the marvelous industrial changes which have been effected during the last five years, but it is too early as yet to have any reliable information from that source. What is apparent to all, however, is that this development was super-imposed upon an industrial structure which, before the war, was capable of producing a substantial surplus of manufactures for export. The situation has been obscured to some extent by the long duration of the war and the consequent exhaustion of reserve stocks of all kinds throughout the world. The withdrawal of from twenty-five to thirty millions of men from active production to engage in military service, and the greatly increased consumption by these men of the output of the largely reduced number of producers resulted in an eager but abnormal demand upon our production during the war. The exhaustion of the world's reserve stocks has projected into the first years of peace that abnormal demand upon our industrial resources. The psychological reaction resulting from the long strain of war has greatly lessened the ratio of production by unit of labor in all countries—in those directly engaged in fighting as well as those not immediately affected by it. The situation in this country has been further complicated by the release of the pent-up buying power of our people, who, while hostilities continued, were intent upon displaying the utmost frugality that they might take their full share in the war financing, which included the huge loans of our American allies.

We see how fortuitous and casual our foreign trade has been, not merely in the time when it only meant four per cent of our production, but in the enormously increased exports brought about by the war. Of scientific organization for foreign trade we were, in our earlier years, throughout the war, and are even now, lacking. We see that we have created an enormous machinery for production, not alone that in well-organized hands but all over the country; while our machinery for salesmanship and distribution to the foreign consumer requires further development in order to compete with countries which have been at war but can now increasingly compete with us in manufacture for the world's trade. The world's demand for manufactured articles is limited only by its purchasing power, in credits, loans or the exchange of commodities. It is not merely that with scientific and broadly conceived organization we can develop a trade that will take up what we do not need at home, it is that we must devise such a plan of campaign, organizing for peaceful contest equipped with finance and transport, or we must be confronted with an overproduction unwieldly and beyond assimilation in this country.

Briefly, the time is almost at hand, if indeed it is not already here, when the effect of the great plant expansion that took place during the war will no longer be considered only by those who give special attention to such matters, but will be observable, and observed, by all our people. As Europe progresses toward her own recovery, and comes back into the full energy of production, that effect will be more and more evident. Some of the European countries have already made great strides toward recovery. It has been estimated that Belgium has attained 80 per cent of her normal productivity and, as the rapidly mounting figures of her exports testify, Great Britain is fast resuming her old form. The anticipation is by no means unduly optimistic that in the near future Europe will be in a position to begin making payments of interest, if not of principal, on the loans we have made to her. These payments, when they come, will be, as far as Europe can make them so, in the shape of merchandise, the products of industry. It is to the advantage of Europe to export to us as largely as she can of the fruits of her labor, and it is obviously to our advantage to receive payment of the interest on her debt to us. It will be our effort to stimulate the importation of raw materials for the benefit of our own industry and to promote the investment of American capital abroad by way of lessening the necessity of immediate payment.

But the fact has always to be borne in mind that foreign trade is at least two-sided, and that it can be successful only when both sides derive profit from it. Imports pay for exports, and we have a huge balance of exports to be paid for. We have no longer a great annual interest bill to meet in London; that has been replaced by an interest bill twice as large to be met in this country. Necessarily, a large part of this bill will be met with goods, and these goods will come into a market equipped industrially to produce much more than it can consume. There is, of course, always room for certain classes of imports; no country is capable of producing all that its people need and desire. We shall continue to sell large quantities of our products in the very countries of Europe which are deeply indebted to us. We shall be confronted, in a quite unmistakable way, with the fact that we are able to produce more than we can sell at home. We shall face, accordingly, such an urgency for foreign trade as we have never before experienced. For, either we shall find markets abroad for the surplus of our industrial productivity, or we shall cease to produce it, which is quite unthinkable. That way lies stagnation, unemployment and business reverses. But the world offers vast opportunities for American enterprise. Needs that have been restricted by jealous and discordant political policies, material development that has been checked by the insistence on narrow spheres of interest, will be governed in the future by a broader and freer conception of international co-operation than has ever prevailed before. It is at least possible to cherish the belief that railroads will be built with a single eye to their commercial value and not to their place in military strategy; that the wealth producing industries which follow in the wake of the railroad will spread throughout long stagnant regions of the earth.

There can be no question about the economic rebirth of the civilized world, for it is already in progress even in places where industrial distress seems most acute and social disorganization most profound. Vast undeveloped portions of the world with fertile soil and cheap labor are entering upon a field of rapid development. They will help supply the rapidly increasing needs for foodstuffs and raw materials, and they will at the same time furnish new markets for finished products. We may not be able to tell the precise extent or fix the exact direction of the forces that are about to change the face of the world, but we may face the future with confidence by the exercise of an intelligent foresight and by being ready to adjust ourselves to the new course of economic development. We must devote the same sustained and intelligent effort to international commerce that has produced such wonderful results in our domestic trade. The development of our industrial productive capacity during

the war, coupled with the change in our national financial status, might, if unintelligently handled, be the forerunner of distress. But if only it be handled with intelligence, energy and courage, there lies in it a vastly greater potentiality for general benefit through foreign trade.

Development of Export and Import Transportation

By R. M. Calkins,
Vice President, Chicago, Milwaukee & St. Paul.

As the growth of our commerce exceeds the demands made by the domestic markets, the surplus can only be disposed of in the markets of the world. Our manufacturing institutions have shown a phenomenal growth and expansion in recent years, testing the capacity of the railroads to accomplish the movement of raw materials and manufactured products. That this situation has been recognized by the Federal Administration and by Congress is evidenced by the passing of the recent constructive Transportation Act which it is confidently anticipated will enable the carriers to provide adequate rail transportation to take care of our constantly increasing volume of traffic of every kind.

Our country is more dependent than any other country in the world upon its railroads for transportation—the greater portion of the tonnage from the farms, mines and manufacturing industries being produced in the interior of the country, and, therefore, subject to rail transportation for long distances before it reaches the consuming markets or ports of transhipment.

The American railroads have proved themselves to be the greatest commerce builders that the world has ever known. Through the wonderful system of interchange and communication established by them, the buyers and sellers of our domestic products have been brought into close contact. The system of through-zone rates has made it possible for the producer and manufacturer, regardless of location, to compete in the most widely separated and distant markets of our country.

In the building of this stupendous transportation system, it was necessary for the pioneers of these projects to undertake tremendous tasks, involving the spending of vast sums of private capital contributed by themselves or realized by the sale of securities, all on the hazard of a successful outcome. Nevertheless, they stepped boldly to the front and opened up the most remote sections of our country, so that an efficient and economical system of transportation and communication was established. Since this initial work was done, it has been the constant effort of these great carriers to foster and encourage in every conceivable manner the territory, towns and latent resources tributary to their lines. Very low rates were made to the settler as an inducement to enter these new fields of endeavor and hew therefrom a home of his own.

The rapid settling of our western country should be an object lesson to every observer and proof conclusive that the method followed by these transportation lines has been productive of remarkable results not otherwise obtainable. Now that the construction of our railway system has been so largely completed and the work of opening up these new territories and countries has been virtually accomplished, it becomes necessary for us to look to other commercial fields as outlets for our surplus raw materials and manufactured products, and such fields must be beyond our shores in foreign countries.

In the minds of railroad men, transportation and communication are fundamental to all of the instrumentalities which go to make up a perfectly balanced foreign trade. When these instrumentalities shall have been established on well known trade routes, advertised thoroughly through the various channels open to the organization operating over these trade routes, the buyer and seller of raw material or manufactured article will in the natural course of business be promptly brought together, and in this way the entire problem will be largely solved.

In the mapping out and establishing the through trade routes, they should be closely allied with the principal railway lines of the country. In fact, there should be a very close working arrangement between the railroad and the shipping interests to the end that through rates and fares between foreign ports and all principal American centers be established and published, and through bills of lading and tickets be obtainable. The wharfage or terminal charge on all through business should be uniform at all of our principal ports. More elasticity should be given to the adjustment of these joint water and rail rates. We must not lose sight of the fact that, in the handling of this foreign commerce, we will at all times be subjected to the keenest foreign competition with water rates which will not be subjected to regulation but will, in all likelihood, be based upon the principle of what the business will stand.

By making this alliance between the shipping and the railway systems, a continuous and uninterrupted through service between foreign destinations and the principal American cities will be established with very beneficial results. Furthermore, such an alliance will encourage the railway lines to become interested in the assembling and despatch of the business, and, given the proper encouragement, will be very helpful in promoting the growth of our foreign business and in stimulating the proper handling of the same. Through the medium of these rail carriers and their allied connection, the American public can be more quickly educated and interested in the building up of foreign trade than by any other method.

Mr. Calkins supplemented his written address by a reference to the present situation of the railroads. He drew attention to the fact that the capitalization of the American railways is the lowest of any representative country, the rates also the lowest, while wages were the highest. He showed, however, that under present conditions there was not enough transportation—in fact, the railways were four years behind the commerce of the country. To the severe car shortage and congestion of the railways, he attributed a large share of the high cost of living and concluded by saying that the present difficulty could only be remedied by higher rates and renewed confidence in railway investments.

Increasing Imports

By Eugene P. Thomas,
President, United States Steel Products Co.

Foreign trade is necessarily reciprocal. We have long been accustomed to speak of competition for foreign trade in terms of commercial warfare. The result has been a deplorable confusion of ideas with regard to the true conception of commerce among nations, which is mutual exchange to mutual benefit. The time has come when it is of vital importance to us, not only to recognize that fact but to adopt it as the guide of our commercial policy.

As the result of the war, the United States has become a creditor nation. Europe now owes us more than ten thouand millions of dollars, the annual interest on which alone would more than absorb all the stocks of gold likely to be acquired by debtor nations. Payment, both of principal and interest, can only be possible by larger exports of the products of the nations that owe us money. Aside from the question of interest on these loans, to attempt to exact payment for American exports only in gold would be an economic mistake. The stimulus of more and more gold with the ac-

companiment of easy money and low interest rates, naturally produces an expansion of credits, and forces prices and wages upward, until the level of costs upon which business is done runs far above that of the rest of the world. The reaction of such a process on domestic trade may not be immediately apparent, but its contracting influences on foreign trade is inevitable.

The problem of a continuous and enduring expansion of our export trade, particularly in manufactured products, depends for its solution on a corresponding increase in our imports. Unless we can accept in payment for our exports, the products of those countries which import from us, their purchases will necessarily be restricted to the commodities which they cannot do without and which they are unable to obtain elsewhere.

Now that we are becoming a great ship-building nation, the necessity for the development of our import trade is manifestly more pressing. There can be no profitable employment of our merchant marine in foreign trade, when maritime competition becomes more pressing, unless the ships can find cargoes to bring back as well as to take out. It may require a triangular voyage to effect that end, but imports there must be as well as exports. That, it will be perceived, means not only a readjustment of some of our ideals of domestic prosperity, but also the development of a commercial and industrial organization of much wider range than that to which we have been accustomed.

The Function of Imports in Our Foreign Trade

By George E. Roberts,
Vice President, National City Bank of New York.

In conclusion, it should be said that the readjustments incidental to our transition from the conditions of a debtor country to those of a creditor country may be greatly eased and facilitated by the development in the United States of a market for foreign investments. It is understood that the interest running on the outstanding obligations of foreign governments to the United States government will be funded for several years, and therefore will not in the meantime affect the exchange situation. If our people will take a lesson from the history of the upbuilding of the great foreign trade of Great Britain and Germany, they will take advantage of low exchange rates to secure permanent investments which will be helpful to trade in the future. Both of these countries have played a large part not only in the expansion of international commerce but in the increase of world production, by supplying capital in the form of industrial equipment for the countries of undeveloped natural resources. They kept exchange rates from rising against them by admitting freely the products of the countries where they were building up their exports, and by re-investing in part the income derived from those countries for further expansion of their interests.

These are the policies which have brought success to the countries that have preceded us in the development of world trade. They will be practicing the same methods in the future, studying the needs and interests of the people whose trade they are seeking. We can have success upon the same terms, but upon no other. In the long run and taking the large view, the greatest prosperity for every country is to be found in such a balanced and mutually-supporting state of international trade as stimulates industry and prosperity everywhere.

This is a fundamental proposition which in its broad significance cannot be controverted; but in the eagerness of individuals to sell and amid the apprehensions which arise from rigorous competition, the people of every country are prone to overestimate the dangers which threaten them from the competition of other countries. It is possible for one country, by reason of natural advantages as by painstaking efforts, to obtain a dominant position in a single industry; but the same reasons which prevent a great one-sided trade in favor of the United States likewise forbid such a trade in favor of any country. It is impossible for any country to monopolize the trade of the world.

Why Direct Selling

By William L. Saunders,
President, American Manufacturers' Export Association.

It seems to me to be altogether a question whether or not we are in a position to finance a project looking to the extension of one's business on a permanent scale. All experience points to the conclusion that if we have a product of value, something which is, or which might be, used in a foreign locality, and if there is a fair chance to sell it at a price not too much above that of the native product, we should send one of our best men first to look over the ground, and then open an office there. At first, except with large concerns with plenty of money, it is best to get desk room in a house of established reputation. This enables one to get accustomed to the ropes, to learn the ways and means of doing business and to obtain credit. After a while, if all goes well, the branch can be extended.

It is obviously best to send men abroad who speak the language of the country where they do business; but this is not always an essential condition. To know the product and the business is the first and most important qualification; to have business judgment, tact and adaptability to meet conditions as they arise, is next in importance. The right man will make connections with those who speak the language, he will keep things going until he himself learns the language.

In no case that I am familiar with has a business been established on any large and permanent scale abroad except through direct selling. I have a case in mind where a foreigner had the agency of an American product. He was doing a good business and the manufacturer at home was well satisfied. This agent retired from business. An American youth, who was only a sales clerk in his office, was made manager, and he doubled the business the first year.

All foreign connections are not the same in their methods of doing business, hence there is no rule of three that can be set down as applicable to all of them. In some it pays to talk American goods, for there is a charm about the name; in others to say that the goods were made in America is of no selling value. A good man on the ground will learn how to steer in these things.

Not only does direct selling bring the maker and buyer in closer contact and afford means of mutual sympathy and interest, but it enables the maker of the goods to more nearly meet competitive conditions. It shows him how to build his product to meet the needs or the fancies of his customer. He gets closer to him. There is also a psychological value in direct selling. The customer thinks and feels that he is in a position to get better prices and terms. Close contact between principal and agent always makes for the best results; there is created a mutual bond of interest. All trade to be permanent and profitable must contain the elements of mutuality of interests. Direct selling promotes this; it is like seeing a man yourself and talking over with him rather than writing letters or sending someone else to talk to him and represent your case.

All buyers in all countries like to place orders with someone who is on the spot. In machinery trades, this is of the greatest value. The buyer feels that there is someone nearby to take care of the product, to see that it performs properly and to aid in overcoming difficulties and in repairing trouble.

Financing Foreign Trade Under the Edge Law

By Elmer H. Youngman,
Editor, Bankers Magazine.

This act gives us for the first time in our history a financial institution, organized under Federal law, for the express purpose of engaging in the financing of foreign trade. The original Federal Reserve Act authorized the establishment of branches of our national banks in foreign countries, and by an amendment to that act the national banks were empowered to subscribe for stock in American banks or corporations principally engaged in foreign banking. Under this amendment several corporations have been formed and are now in operation. But the Edge Law goes beyond this in providing for the formation of these foreign banks under Federal charter, thus giving them whatever prestige the authority of the National government confers.

The provision in the Edge Law which is not only novel but of first importance is that which permits these corporations to issue their own notes and debentures for sale to investors.

It has been my good fortune within recent months to attend a number of representative gatherings of business men and bankers, and it has been the prevailing opinion at these meetings that if we are effectually to finance our foreign trade under present conditions the participation of the individual investor must be enlisted. In other words, we shall have to find some means of selling foreign securities, either directly or indirectly, to a large body of American investors. The Edge Law gives us what is perhaps as good a measure for this purpose as could be devised.

We cannot reasonably expect that the average American, even if possessed of some experience with domestic securities, could have the knowledge of foreign investments which would enable him to discriminate between those which are sound or otherwise. But the Edge Law Corporations will relieve him of this responsibility. The investor who buys their debentures will be in fact buying an American security, the obligation of an American corporation, with foreign collateral.

We can no longer plead lack of adequate machinery to enable us to make such financial provision for our foreign trade as it may require. It may be said also that the new law comes at an opportune time, for the limits of short-term financing seem not far off; and furthermore, some of these credits which were supposed to be liquid have shown a tendency to congeal, so that if our foreign trade is not actually to suffer through inadequate financing, we must resort to the long-term credits, which the Edge Law makes possible.

Locomotives for the Far East

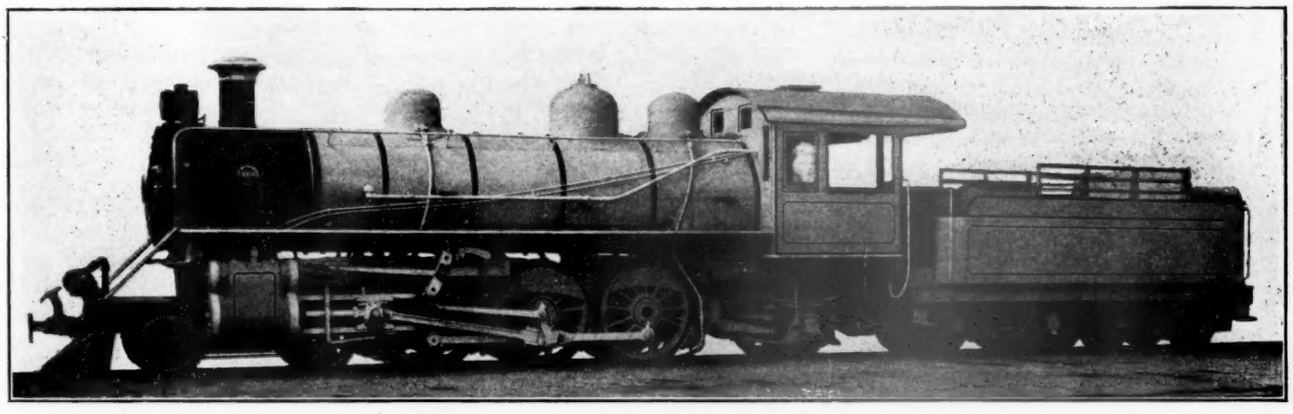
THE USE OF AMERICAN built locomotives in the Far East is constantly increasing; among those built during 1919 are two types constructed by the Baldwin Locomotive Works.

Consolidations for Shantung Railway

Four locomotives of the Consolidation—2-8-0—type have been built for the Shantung Railway of China. These are for freight service and follow American practice and design closely. They are of standard gage and are designed to operate on curves having a radius of 990 ft. on main line track and with 495 ft. radius on sidings.

The cylinders are 21 in. in diameter with a 26-in. stroke, 10-in. piston valves being used. The Walschaert valve gear is applied and is controlled by a screw reverse gear. The driving wheels are 54 in. in diameter and the maximum tractive effort is 32,500 lb. with a ratio of adhesion of 4.24.

The boiler is of the extended wagon top type with a wide firebox. The front end of the crown sheet is supported by two rows of Baldwin expansion stays. A fire-tube superheater is installed and the equipment includes a pyrometer for registering the steam temperature. The throttle valve is of the Rushton pattern equipped with an auxiliary drifting valve. The working steam pressure is 180 lb. The steam dome, sand box, bell, smoke stack and headlight are similar in design and location to those on locomotives used in America. The locomotive pilot and coupler are distinctly American and give these locomotives an appearance quite in harmony with railroads in the United States.



Pacific Type Locomotive for the Federated Malay States Railways

Not infrequently locomotives designed for service in China are arranged with a left hand operation, but in this case the engineman is located on the right hand side and the cab fittings are installed accordingly.

In addition to the air brake equipment a powerful screw hand brake, which is connected with all of the driving wheels, is also supplied. An unusual feature is that the smokebox is lagged and jacketed, a practice not generally followed in American locomotive construction. The lubrication of the cylinders and air pump is supplied by a force feed lubricator. The tender tank is of the water bottom type and is carried on a steel underframe. The tender trucks are of the arch bar type, with steel bolsters supported by triple elliptic bolster springs.

Pacifics for Federated Malay States Railway

Another interesting group of locomotives for service in the Far East consists of 12 Pacific—4-6-2—type built at the

Baldwin works for the Federated Malay States Railways. They are of narrow gage—3 ft. 3½ in.—and are used for both passenger and freight service.

These engines have an interesting frame arrangement; a Commonwealth steel cradle is applied in connection with a Hodges improved rear or trailing truck. The cylinders are 17 in. in diameter with a 24-in. stroke. The steam is distributed by 8-in. piston valves which are controlled by Walschaert valve gear. The driving wheels are 54 in. in diameter and the maximum tractive effort is 18,600 lb. with a ratio of adhesion of 3.54.

The boiler has a straight top and is equipped with a fire-tube superheater. The front end of the crown sheet is supported by two rows of Baldwin expansion stays. A firebrick arch, supported on three tubes, is installed. Bituminous coal is used for fuel and the working steam pressure is 170 lb.

American steam brake equipment is applied to all of the drivers, but the tender is equipped with an English automatic vacuum brake. Two sand boxes are provided, the sanders being steam operated and arranged to sand both in front of and back of the driving wheels. The headlight is arranged to burn acetylene and in order to insure an adequate supply, a storage tank of unusually large capacity is provided.

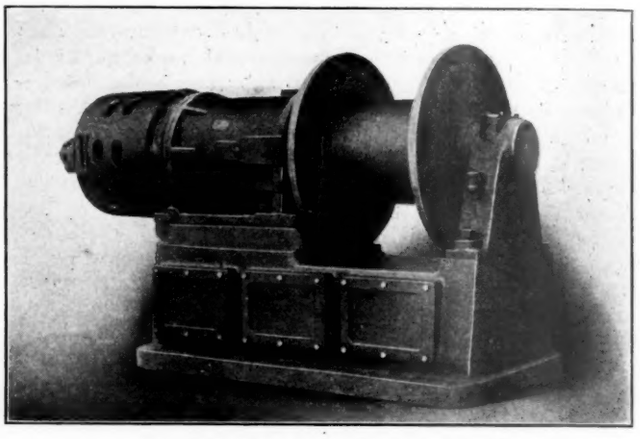
The tender is of the water bottom type carried on a steel underframe. The tender trucks are of the arch bar type with steel bolsters supported by double elliptic springs. The coupler and drawbar on these locomotives are not of the design which is standard American practice.

These locomotives present the same clean lines and simplicity of outside arrangements which is typical of the best American practice. A comparison of the principal dimensions of the locomotives described in this article is given in the following table:

	Shantung Railway	Malay States Federated
Cylinders	21 in. by 26 in.	17 in. by 24 in.
Boiler diameter	64¾ in.	56 in.
Steam pressure	180 lb.	170 lb.
Firebox, length	90-7/16 in.	66-3/16 in.
Firebox, width	65¼ in.	54¼ in.
Tubes, number and outside diameter	26—5⅜ in. 167—2 in.	18—5⅜ in. 107—2 in.
Tubes, length	14 ft. 3 in.	16 ft. 0 in.
Water heating surface	1,906 sq. ft.	1 403 sq. ft.
Superheating surface	444 sq. ft.	350 sq. ft.
Grate area	40.9 sq. ft.	24.9 sq. ft.
Driving wheels, diameter	54 in.	54 in.
Front truck wheels, diameter	31½ in.	30 in.
Back truck wheels, diameter	.....	33½ in.
Wheel base, driving	15 ft. 6 in.	9 ft. 6 in.
Wheel base, total	23 ft. 6 in.	27 ft. 0 in.
Wheel base, engine and tender	52 ft. 2 in.	50 ft. ¾ in.
Weight on driving wheels	137,860 lb.	67,400 lb.
Weight, total engine	158,890 lb.	114,800 lb.
Weight, total engine and tender	262,000 lb.	177,600 lb.
Weight, front truck	.....	27,700 lb.
Weight, rear truck	.....	19,700 lb.
Tank capacity	5,000 U. S. gals.	2,400 U. S. gals.
Fuel capacity	8 tons	5 tons

An Electric Car-Hauling Winch

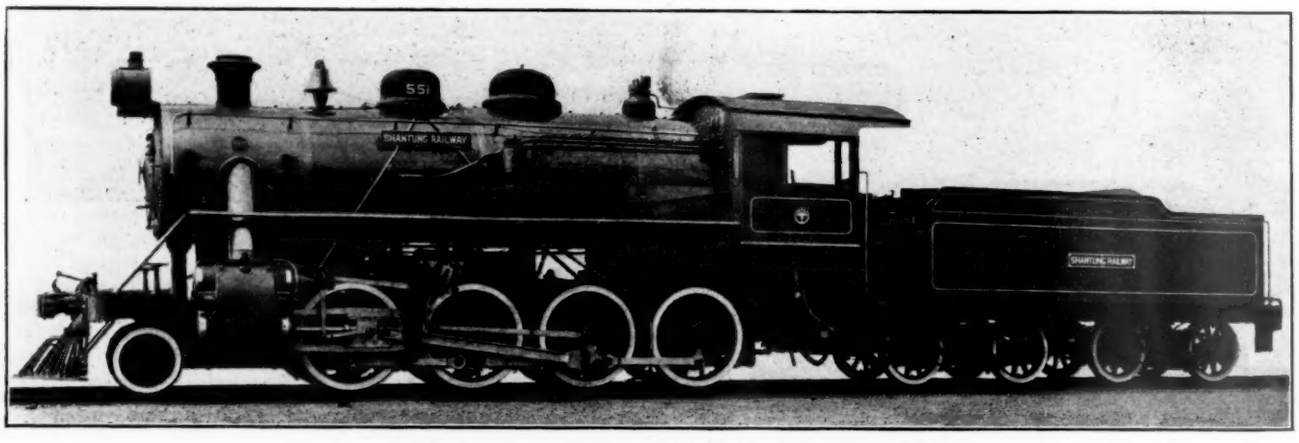
THE SHEPARD ELECTRIC CRANE & HOIST COMPANY, Montour Falls, N. Y., has recently developed a new type electric car-hauling winch for use at coaling stations, or other points where it is advantageous to move cars without the aid of a locomotive. The new winch is mounted on a cast iron base which also forms the enclosure for the controller resistance, the controller being mounted either directly on the base or separate where remote control is desired.



The New Shepard Electric Winch

The gearing is of the balanced drive type, driving at two points diametrically opposite, thus insuring long life for the gears and bearings and quietness of operation. This machine is also arranged so that a gear shift can be installed which gives a 4 to 1 reduction, thus permitting the winch to handle four times the rated load at one-fourth the rated speed. All moving parts are fully enclosed, making the machine waterproof. Lubrication is secured by the oil-bath system.

One of these hoists has been installed at the new coaling station of the New York Central at Rensselaer, New York, to haul loaded cars up to the coal dump in place of locomotives. This installation has a capacity of 4½ tons, a speed of 55 ft. per min., and a winding drum capacity up to 250 ft. of cable. It is driven by a 22-hp. electric motor of the alternating current type at a speed of 700 r.p.m. In a recent test made with this machine 14 cars were pulled around a sharp curve and up grade after having been partly frozen in.



Consolidation Locomotive for the Shantung Railway of China

The Relation of the Railways to Foreign Trade*

An Analysis of the Problems Confronting the Railroads in Adjusting Rates on Export Traffic

By William Sproule
President of the Southern Pacific

"THE RAILROADS and the Foreign Trade" is a subject that has a familiar and even a controversial sound. There has always been an atmosphere of controversy about foreign trade, whether as a matter of commerce or of transportation. That is because in the popular mind there is something alien about foreign trade. The consequence has been seen in the difficulty of getting protection for our industries or our commercial business in foreign countries. In sympathy with this has been the lack of initiative and diligence in the promotion of our foreign commerce and the lack of organized plan for promoting that commerce, until the National Foreign Trade Council came to consider its problems and their solution.

The railroads have been in very much the same position in handling the transportation problems connected with foreign trade. When the railroads have made special rates to meet the needs of foreign trade, as these needs were understood, they, too, often have been accused of discriminating in favor of the foreigner as against the traffic moving within the confines of the United States, which for convenience we call domestic traffic. One of the familiar aspects of controversy about foreign trade is the claim of damage done to or exactions levied upon our domestic trade whenever an article produced or made in this country is sold in a foreign country for the same or for a less price than that at which it may be had in this country. Precisely in the same way, when the railroads make a rate from point of production or manufacture to the United States port of export that is less than the rate to the same port or related ports for home distribution, they are apt to be charged with discrimination in favor of the foreign user as against the home user of the same goods.

Except as to the nations whose frontiers are to the north and south of us, the only way our prosperity can be permanent is by increase in our foreign trade overseas. In this increase the railroads have an interest that is direct and not merely incidental. It is a question vital to our country, and the desire of the railroads to be of service in that trade is not only in direct self-interest but from a larger motive, because of the knowledge that what makes for the prosperity of all makes for the prosperity of the contributing agencies.

But just as profiteering at home and dumping abroad is apt to be the popular idea of what foreign trade means, so the making by the railroads of rates necessary for foreign trade, which may be lower than charged at the same time for local or domestic trade, is apt to be misunderstood by the public, who may be led to think that the lower rates so made are at the expense of the people at home. This misunderstanding has been fostered for a generation. The railroads have been so accused, and unjustly. Nor has the accusation been confined to those seeking popular favor from personal motives. It has come also from boards of trade, chambers of commerce and others in commercial life. The rates have been used too often as an argument for lower rates at home. This has been on the general principle that whenever a lower rate on a commodity could be found it was used in comparisons to push down the existing rate at home, though there is nothing that is more misleading than such comparisons. The relatively longer distances that our overseas commerce must move, with the consequent greater transportation burden, is not generally recognized even by the merchant and manufacturer. The merchant who made the same percentage of profit on the great variety of goods carried in the several stories of his building and its basements would not last long against his competitor with a flexible scale of profits based upon his experience of what the trade to which he caters will accept, and which in combination will yield him profitable returns, with satisfaction to himself and his customers. Like the successful merchant, the railroad or the nation that wishes to be of greatest usefulness seeks to be responsive to the greatest variety of needs on the part of its customers. The railroads' customers are the public—the producers and shippers of the country—whose needs differ as widely as the customers of that department store, or differ as greatly as the lines of latitude and lines of longitude of our country.

As to the railroads, the first point to be remembered is that neither the railroads nor the merchants would have in many lines any foreign trade worthy of consideration if the railroad rate was restricted to the rate charged for goods in domestic carriage and if the ocean rate was also held rigidly to that which applies locally from home port to the port of foreign destination. The prices the party at destination can pay are fixed by conditions that prevail at the foreign destination. We have to do business in a way that will meet those prices under the conditions that obtain at that foreign destination or we have to stay out of the business. If there is a reasonable way of taking part in the traffic at that point a public service is rendered by the shipper and by the railroads and the water carriers when their efforts are combined to reach that commerce and so extend the trade of our country abroad. Yet as the merchant or manufacturer has been accused of profiteering (which is merely a new word with an old meaning) because the prices are lowered by him for the purpose of achieving that foreign market, the railroads have been accused in like manner when they have helped to carry the burden by rates for carriage of business which without this aid would not be moved. To move or not to move the business, that is the question.

This brings us to another phase of the subject. Every port of the United States yearns for a share of the foreign trade. Ports which have merely tasted a little of that trade will readily claim that their deep water, their port facilities and their location give them a natural claim for a share of the foreign trade, and generally they are right if only there is enough foreign trade to go around among all the ports that seek it. Under any conditions export trade will follow the line of least resistance, which means that it will go through the port best suited to the needs of the traffic for each piece of business. This ambition of each port to get the largest part of the foreign trade puts upon the railroads a pressure constantly exerted to make rates to the port or ports served by each railroad that will make it possible for the business to move over the railroad upon which the pressure is brought. Thus in the Asiatic trade there always has been pressure upon the railroads in the middle west of our country to make rates to the Atlantic ports that would enable the business to move through those ports via the Suez Canal, while at the same

*Abstract of a paper read before the Seventh National Foreign Trade Convention at San Francisco, May 12.

time the competitive effort is exerted to put the business through Pacific ports in vessels plying directly across the Pacific Ocean. Now comes the Panama Canal with its problems, tending to throw out of gear the arrangements of the past, probably to force readjustment in the relation of all of the United States competing ports in their struggle to retain the share of the foreign trade they had before the war and gain new advantage as the trade of the world increases in volume. Although the Panama Canal has been held in leash, as it were, by the world war, it is the most powerful factor that has come into foreign trade since the Central Pacific (now the Southern Pacific) completed the spanning of the continent by railroad and the Southern Pacific linked the cotton fields of Texas with the ports of the Pacific. The Panama Canal will make more intense the competition between the ports of the United States for the foreign trade, and so will increase the competition between the railroads, not only because of a proper desire upon the part of the railroads serving the ports to share in the foreign trade but because of the pressure exerted upon those railroads for rates that will permit our industries to reach the foreign markets. When against the railroads there is combined with the pressure of the industries requiring transportation the pressure of each port to build up its own trade as a port and the urging by each steamship line using the port that cargo be brought to ships' tackle in quantity to maintain that trade route, it can be seen that the railroads have no easy task in meeting the rate requirements of the varied interests concerned.

Railroads in the foreign trade have the further problem of meeting the views of the water carriers, without whose service foreign trade would be impossible. The water carrier knows as well as the railroad, and often better, what through rate must be made from the point where the business originates in the United States to the destination sought for the goods to find market in the foreign country. It is to the interest of the water carrier that the railroad shall accept the lowest possible earning as its proportion of the through rate, for obviously the smaller the railroad's share of the rate the more is left for the water carrier. Here again the railroads have their difficulties. The same steamship line, for example, may have liners plying from competing ports. It does not stretch the imagination to perceive one steamship interest having sailings from an Atlantic port and a port in the Gulf of Mexico and one or two ports on the Pacific slope, all sharing in the Oriental trade. Thus for all of these ports there are competing and conflicting interests, and in the white heat of competition that is bound to follow the restoration of the world to its normal activities the railroads will be placed in a more difficult position than at any time heretofore. Greater calls than ever before are likely to be made upon them, responsive to the competition which in turn will be intense between the commercial agencies that handle the production and distribution of our mills, factories and fields. These conditions will but make the railroads the more eager to be useful, for they share the atmosphere of their constituents.

It should not be assumed, however, that the intention to be of service means that a railroad is ready to give or is allowed to give the transportation for the mere cost of the service or less than its cost. It is expected, and is reasonably expected, of a railroad that it shall not render to anyone a service in which it sustains a loss. It is reasonably expected that for every service the railroad renders it shall earn at least the out-of-pocket cost of that service, with some compensation added to this cost as a contribution toward the net result of its operation.

It is also expected, and reasonably expected, that the rates accepted on one class of traffic shall not be so low as to impose a burden upon another class of traffic by charging it higher rates than otherwise that traffic should pay. As the highest rates the railroad may charge on any of the commodities it carries are fixed under approval of governmental authority, it follows that the range from the highest to the lowest rate charges must be such as will yield the railroad a reasonable aggregate return if the business of the carrier is so to prosper as to function fully for the public service. It follows, further, that any expectation that the railroads can meet at will the needs of foreign trade by reduction in their rates is not well founded. They can do so only to the extent, first, that they can justify reduction as necessary in the case, and, secondly, that they can justify the lower rate when necessary as a compensatory one for the service, in the sense that it yields them some profit over the net cost of carriage under the circumstances covering that transportation.

This reminder has special reference to the railroads serving the Pacific coast ports, because those railroads have to haul long distances much of the foreign freight they carry, the Pacific coast being as yet not a large manufacturing area, although its factory growth is active. For cargo the water carriers serving the Pacific ports have to rely largely on the products natural to the Pacific slope, supplemented by cargo brought by rail from the Gulf states and from the manufacturing districts of the states east of the Rocky mountains.

I have dealt so far with export traffic because it is the great field we have in mind in the first instance. In doing so the importance of import traffic has neither been forgotten nor can it be allowed to remain obscure. The factors in import traffic are in all essentials the same as in export traffic so far as concerns the railroads, and having dealt with some length on the export phases of the business it does not seem necessary to say much about the imports, as the controlling features are for the most part interchangeable. Foreign trade consists of exports and imports for the railroads and for the ships and for the nation. The railroads in foreign traffic have not only to join in through rates, whenever they properly can do so, that will help move the traffic; they have also to recognize that a ship is a unit which has to be loaded with heavy cargo below and with cargo that, in gradations of space related to weight, will permit the ship to be loaded to her carrying capacity in seaworthy fashion. For if the ship is to pay her way she must find such cargo as will give her tonnage and stability, and in both directions, and the railroads have to be ready to participate in the carriage of that cargo in each direction.

This summary of the situation doubtless brings to mind the query as to how, under these trying and conflicting conditions, the railroads can find basis upon which to make rates to fit the foreign trade. It is no secret among railroad men that this has always been a difficult question. The railroads have been beset by the competition between producers or manufacturers, between points of production or manufacture, between rival commercial bodies and interests, between rival ports and rival ocean carriers, and last but not least, the rivalry between the railroads themselves in competition with each other and in response to the communities they serve. In the end the main effect has been to bring the railroads to a point in their history in which the foreign traffic has been the least profitable and most debatable part of their business.

How these uncertainties and this lack of profit in the foreign business carried by the railroads can be obviated for the future is an interesting question. It is not unlikely that the solution for it rests in the National Foreign Trade Council. If the railroads find in this council a common source of information and common fount of facts, it will be a step forward of no small moment. While the factors that lead to entry into a foreign market, whether as importer or exporter, are variable, there are certain factors that will be less variable; one of these factors is transportation, and of this the rail transportation will of necessity be the least variable. The railroad is a fixed entity. It is always at your service and it is always in the same places. The ships can come and go, can change their route or lay off or quit. Not so the rail-

road. It follows that in any scheme of through rates the railroad, since it serves all the people and the foreign trade is only a small part of its functions, cannot be expected to be responsive to those wide and rapid fluctuations in rates in which other vehicles of commerce, especially water carriers, may indulge. Indeed, a substantial volume of the foreign trade carried to and from the ports by the rail carriers of our country will always be done under the same rates that apply to the home traffic, but there is also a large traffic that will continue to need rates that are helpful. This makes it important that the basis of information upon which the rail carriers fix their foreign rates shall be both accurate and up to date, with adjustment as to competing ports in the United States that will not cause the railroads simply to see-saw each others' rates and fritter away their revenues without any substantial benefit to the foreign trade. No business can long be done and no business can be done well except on the basis of profit. This is the more true in railroad service that calls for promptness and which must be reliable; and in the foreign trade prompt and reliable service by our railroads is one of the most urgent requirements.

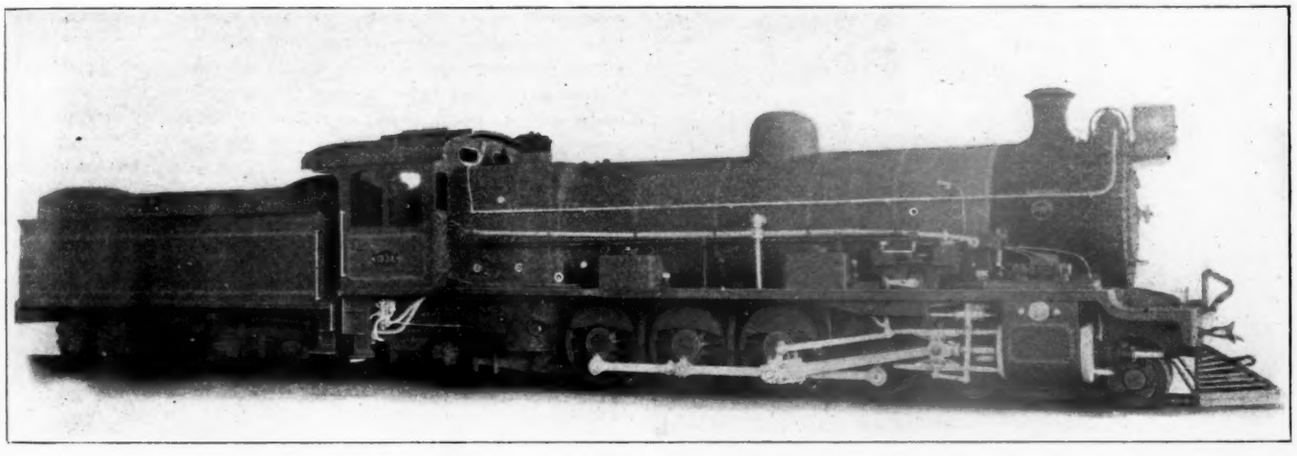
The National Foreign Trade Council can be helpful in this respect, not merely in educating the general public to the importance of foreign trade, but also in educating all concerned, including even the agencies of the government, that foreign trade is necessary to the welfare of our country; that it has problems of its own for the carrier as well as the merchant, and that rates made for foreign trade should not be considered any criterion for measuring the rates on the business done at home. The people should also be educated to the fact that foreign trade is not to be built up on the basis of chronic agitation for reduced rail rates, as these can be granted only under circumstances and conditions that may be justified by close analysis. This is the day of regulation, and for the railroads it is the day of regulation in the fullest sense, although from that regulation the ocean carriers are largely free. The ocean carriers will have to do their part in building up the traffic, for in their failure to do so the efforts of the railroads would be futile. But that is another story which the ocean carriers can tell to better advantage.

As I have already said, this summary of the situation induces the query as to how, under the trying and sometimes conflicting conditions to be met, the railroads can find the basis on which to make rates from time to time to fit the foreign trade. This brings me to the closing suggestion that the railroad which bases its rates upon the best information and applies that information with the greatest intelligence is the best servant, other things being equal; and the railroads are sincere and consistent in aiming to make their rates only upon reliable data, for this is to their self-interest and to the public interest alike. If the National Foreign Trade Council is successful in providing such information—up-to-date, open to all and of general acceptance—as will contribute toward making it possible for the railroads to reach their conclusions from the solid foundation of fact, the railroads will thereby be better able to take their part in the foreign trade, and so further the laudable purposes of this young and ardent and patriotic organization.

Mountain Type Freight Locomotives for the South African Railways

WHILE IT IS TRUE that locomotives built in accordance with American practice have demonstrated their fitness for service in all parts of the world, there are many railways which, for good and sufficient reasons, when purchasing locomotives from builders in the United States, specify that European designs be followed. American builders have had considerable experience in work of this kind, even to the extent of building locomotives throughout to the metric system of measurement.

The Baldwin Locomotive Works have recently constructed thirty locomotives for the South African Railways, built throughout in accordance with the railways' designs and specifications. The South African lines are built to a gauge of 3 ft. 6 in., and in view of the narrow gage and clearance limits, the motive power is conspicuous because of its exceptional weight and capacity. The new locomotives are of the 4-8-2 type, and the average weight carried per pair of coupled wheels is very nearly 38,000 lb. The tractive effort is 41,700 lb., which compares favorably with the motive power used on standard gage lines in the United States.



Baldwin Narrow Gage Mountain Type Locomotive for Export

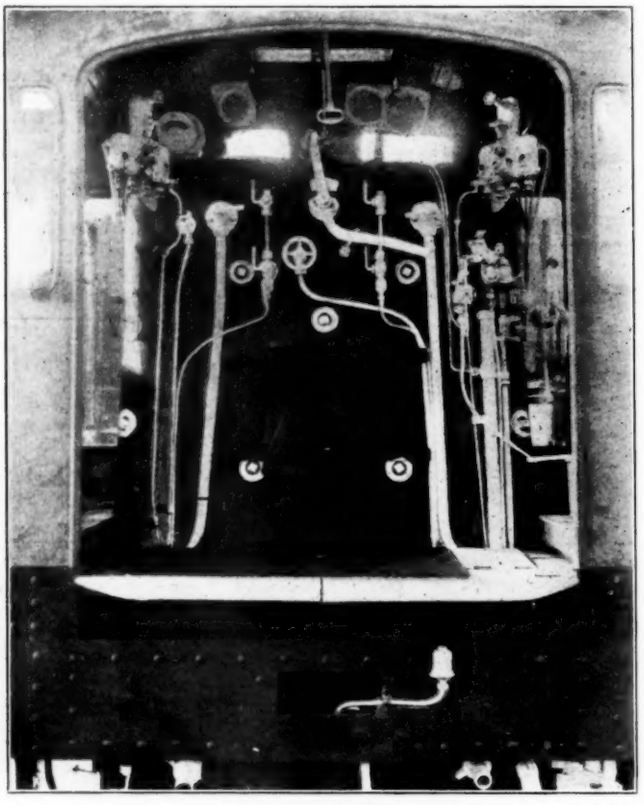
Locomotives of this general design have been in service on the South African Railways for some time, working between the Witbank coal fields and Johannesburg, hauling trains of 1,400 tons over this 80-mile stretch of track, the maximum grades being 1 per cent. The locomotives are designed to traverse curves of 300 ft. radius.

The new Baldwin engines have straight top boilers, with wide fireboxes of the Belpaire type. The inside firebox plates are of copper; a material which has given excellent service results in this district, where the water used is of exceptionally poor quality. A fire-tube superheater is installed, and the steam temperatures are indicated by the permanent installation of an electric pyrometer.

The frames are of the plate type, which were shipped completely assembled with cross-ties, cylinder saddle, cylinders, guides and guide yoke. The pistons were in the cylin-

ders, and the cross-heads in the guides. This type of sub-assembly makes for considerable convenience in the final erection.

The equipmen tof these locomotives includes American steam brakes on the coupled wheels, and automatic vacuum brakes on the tender, with train connections. The equipment includes Hasler speed recorders and a power operated grate shaker. On the right hand side of this locomotive is located a combination steam and hydraulic reverse mechanism, connected directly to the reversing shaft of the locomotive. This mechanism consists of one steam sylinder and one water cylinder. The two cylinder pistons are connected to a common piston rod, which in turn is fastened to the reverse shaft arm. The water cylinder is simply a cylinder with passages from one end to the other, and is entirely filled with water. This cylinder acts as a locking device for the holding of the reverse shaft in a desired position. The steam cylinder is used for moving the reverse shaft and at



Interior of Cab

the same time causing the water piston to move it. When the steam valve in the cab is closed, the steam ceases to function and the water cylinder, by having equal pressure on both sides of the piston holds the gear in the proper position.

General Data

Gage	3 ft. 6 in.
Service	Freight
Fuel	Coal
Tractive effort	41,700 lb.
Weight in working order	205,100 lb.
Weight on drivers	151,900 lb.
Weight on leading truck	27,200 lb.
Weight on trailing truck	26,000 lb.
Weight of engine and tender in working order	310,000 lb.
Wheel base, driving	13 ft. 6 in.
Wheel base, total	31 ft. 9½ in.
Wheel base, engine and tender	57 ft. 7⅜ in.

Ratios

Weight on drivers ÷ tractive effort	3.64

Cylinders

Kind	
Diameter and stroke	22½ in. by 26 in.

Valves

Kind	Piston
Diameter	11 in.

Wheels

Driving, diameter over tires	51 in.
Driving, thickness of tires	3 in.
Driving journals, main, diameter and length	9 in. by 10½ in.
Driving journals, others, diameter and length	8½ in. by 10½ in.
Engine truck wheels, diameter	28½ in.
Engine truck, journals	5½ in. by 8½ in.
Trailing truck wheels, diameter	33 in.
Trailing truck, journals	5½ in. by 11 in.

Boiler

Style	Straight top
Working pressure	190 lb. per sq. in.
Outside diameter of first ring	69 in.
Firebox, length and width	88 in. by 65⅛ in.
Firebox plates, thickness	5/16 in.
Firebox, water space	3 in.
Tubes, number and outside diameter	139—2¼ in.
Flues, number, and outside diameter	24—5½ in.
Tubes and flues, length	20 ft. 1⅞ in.
Heating surface, tubes and flues	2,338 sq. ft.
Heating surface, firebox	158 sq. ft.
Heating surface, total	2,496 sq. ft.
Superheater, heating surface	532 sq. ft.
Equivalent heating surface*	3,294 sq. ft.
Grate area	39.9 sq. ft.

Tender

Weight	104,900 lb.
Wheels, diameter	33½ in.
Journals, diameter and length	5½ in. by 10⅛ in.
Water capacity	5,100 gal.
Coal capacity	8 tons

*Equivalent heating surface = total evaporative heating surface + 1.5 times the superheating surface.

THE PATTERSON & WESTERN, 23.6 miles in length, and operating from Patterson, Cal. (on the Southern Pacific, 25 miles south of Tracy) west to Jones, has filed with the Railroad Commission of California a petition for the abandonment of the road. The road, built by the Mineral Products Company, Ltd., for the purpose of "tapping what was supposed to be wonderfully rich and varied resources and to transport the tonnage from the mines of the company," has failed because these resources have been found to be without value sufficient to justify their development. The owners of the railroad suggest that the line be abandoned and that the roadbed be used as the foundation of a proposed highway from Patterson to San Jose. The railroad cost approximately $280,000 and has been operated at a loss since its completion in 1917.

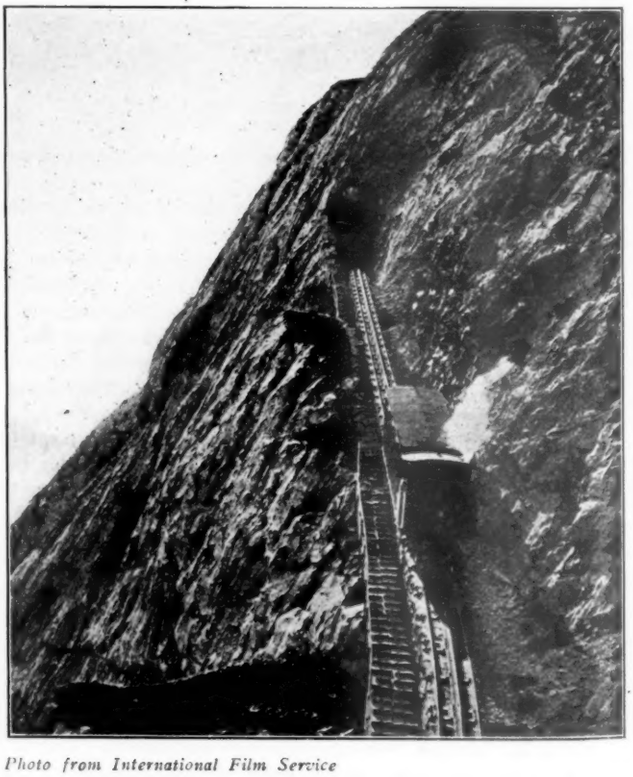
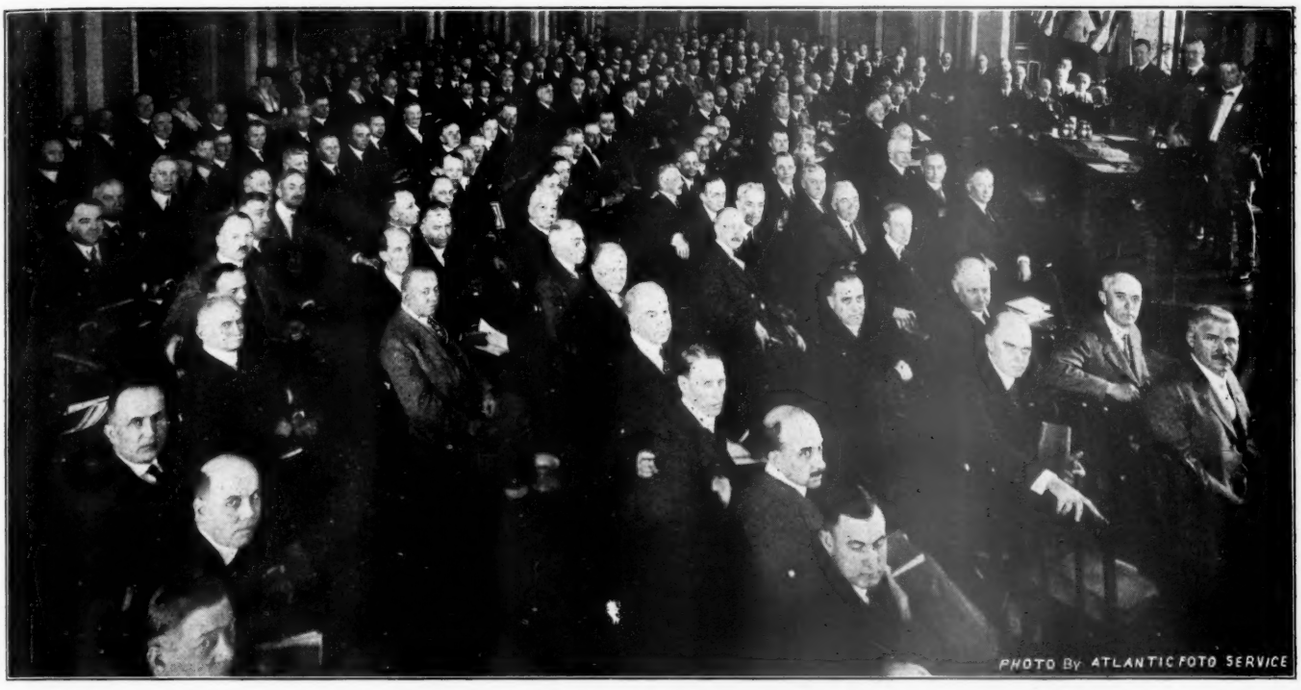


Photo from International Film Service

A Cog Railway in the Department of Haute Savoie, France



The Meeting of Railway Accounting Officers' Association.

Accounting Officers' Association Annual Meeting

Discussion of the New Burdens Imposed by the Transportation Act and the Settlement of Affairs with the Government

THE THIRTY-SECOND ANNUAL MEETING of the Railway Accounting Officers' Association was held at the Hotel Traymore, Atlantic City, N. J., on May 12, 1920. Two speakers had been invited to address the meeting at the first session—Hon. Joseph B. Eastman, member of the Interstate Commerce Commission, and A. J. County, vice-president of the Pennsylvania Railroad. Mr. County's address will be reported in a later issue. Mr. Eastman's address follows:

The New Accounting Problems Under the Transportation Act

By Joseph B. Eastman,
Interstate Commerce Commission.

As you know, I have not long been with the commission, and I have felt honored in being selected as the member to whom our Bureau of Carriers' Accounts reports. Not a few of you to whom I speak today are graduates of this bureau. Its name, by the way, has just been changed from the Bureau of Carriers' Accounts to the Bureau of Accounts, not out of any disrespect to the carriers, but in the interest of economy and efficiency.

For my own part I am not an expert accountant and have little expectation that I shall ever become one. The only claim that I venture to make is that I think I can understand most accounting questions if sufficient time is given me. But even with time I still find myself in doubt now and then whether the proper word is "charged" or "credited," and when it comes to unadjusted credits, unadjusted debits and suspense accounts I often feel like an excursionist in No Man's Land.

Speaking as a layman, it seems to me that the important thing about railroad accounts is that they shall clearly portray the facts in one uniform language as simple and understandable as it can be made. There are few things more misleading and vicious than devious, untruthful and crooked accounting, and there are few things of more real value and help than straightforward, well-conceived, honest accounting. I think I am correct in saying that the importance of sound principles in carriers' accounts was first recognized in my home state, Massachusetts. At one time I had the task, which proved to be a pleasure, of reading the reports of the old Railroad Commission of Massachusetts from the time of its origin in 1869 under Charles Francis Adams; and one of the interesting things was the opposition encountered in introducing a system of uniform, supervised accounts. There were railroad men in those days who regarded it as an unwarranted and dangerous invasion of private property rights.

But times have changed, and no one thinks of such objections now, and I know it is your endeavor, as it is our own, not to weaken the system of public regulation but to improve and strengthen it and help it to accomplish the results which it is designed to produce. The railroads have gone back to private control. Personally, I thought it wiser under existing conditions that they should remain in the hands of the government. But however much you may disagree with me in this, I think you will have no difficulty in agreeing that private control will be a success only if the essential public nature of the business is fully recognized, and to the extent that you and the other responsible officers and directors of the carriers act upon the principle that public office is a public trust. We of the commission regard you not as antagonists but as co-laborers in a common undertaking. We look for your faithful and loyal help and have confidence that we shall not be disappointed in our expectations.

The Interstate Commerce Commission has been the subject

of a great deal of criticism; but we want criticism, not only of our policies, but of our ways of doing business. Much is said of economy and efficiency in railroad operation, but we are just as anxious to have economy and efficiency in commission operation. Under the new legislation our administrative functions have been enlarged, and if we are to be successful in this work we must be organized for prompt, decisive action. The word "red tape" has come to be associated with government departments, often very unjustly, I think; but I assure you that there is no one in the commission or in its employ who has any passion for "red tape." We want to meet our duties in the most direct and simple way and carry on the work with energy and despatch and without lost motion. Speaking for the Bureau of Accounts, if at any time you think our methods can be improved I shall greatly appreciate frank criticism, and I know that Mr. Wylie will, too; and what I say for this department applies with equal force to other branches of the commission's work.

And while I am making such suggestions as these there is one more that I should like to offer. I have wanted to make it for a long time, not to you in particular, but to any who are interested. In the course of your duties most of you are called upon from time to time to appear as witnesses in proceedings before the commission. As a result of some experience upon the bench in both state and federal matters, permit me to say that very few realize the persuasive force of testimony from a witness who is not afraid to say he does not know, when that is the fact; who answers questions of opponents courteously and frankly and without equivocation; and who does not seek to sustain a position which he knows in his inmost heart the facts will not support. And such testimony can be detected by those upon the bench more easily than many think.

Turning now to the more specific accounting questions by which the commission is confronted: We have asked Congress for an appropriation which will permit us to double our existing force of accountants, and we are hopeful that we shall be able to bring this improvement to pass. One of the important matters that we have in mind is a revision of the existing classifications. In the spring of 1907, just after the uniform system of accounts had been prescribed as a result of the joint labors of the commission and special committees of your own association, we were asked whether there would be any further labor for the association to perform in this connection. Apparently some then thought that a perfect system of accounts had been evolved, but it was seen that there would be need for revision and improvement in the future, and experience has justified this prediction. Changing conditions create new requirements. Our own experience in valuation work has suggested certain changes.

By way of illustration it has been suggested that the balance sheet accounts for additions to property through income and surplus fall short of being true statements of property expenditures defrayed in this way; that a more uniform treatment of discount on funded debt is desirable; that investment in property devoted to ancillary operations, such as shops for the manufacture of equipment, should not be merged with investment in road and equipment, and that the operations of such properties should be segregated for accounting purposes; that greater uniformity is desirable in the determination and use of revenue, tax and other accruals, and that accounting for betterments might well be modified so that the investment accounts may more accurately reflect changes in cost where property is replaced in kind. Upon these and similar questions we shall soon be seeking your views.

With the help of an enlarged force we hope to be able to police the accounts of the carriers more frequently and more thoroughly. "Police" may seem a harsh word, but you understand the process of inspection and review which has come to be known by that term. Briefly, our purpose is to make sure that our accounting rules are followed in good faith and applied with care and uniformity. The files of the commission contain thousands of inquiries and interpretations upon points of doubtful construction. The very complexity of the subject makes it inevitable that differences of opinion should develop, and it is our belief that more frequent personal inspections by our field forces will lighten the burden upon our central office and make it easier for you to harmonize your practices and straighten out the difficulties that you encounter.

Passing to the new accounting duties which the Transportation Act, 1920, has laid upon us, I have said that some of these are temporary and, frankly, we are glad that they are. I refer particularly to the duties in connection with the ascertainment of deficits and guaranties and the making of advances. It is our threefold task in this respect to be fair to the carriers, to protect the treasury of the United States and to keep within the mandates of Congress. The strain upon our present forces, while the construction of a larger organization is in progress, has not been small; but we are striving to avoid delay. In the very near future you may expect announcements in regard to the standard of maintenance during the guaranty period and the vexatious questions of so-called "lapover" items, matters upon which you have already conferred with us at length. Aside from maintenance, the statute also requires the commission, in determining the amount to be paid under the guaranty, to correct and exclude any disproportionate or unreasonable charges to operating revenues or expenses, and I am informed that this provision has been the cause of some perturbation. Permit me to say that no carrier should fear that charges will be excluded or corrected which the transportation needs of the public demand or that any narrow view will be taken of those needs; but we shall be as vigilant as we know how to be in safeguarding the public treasury. If carriers will but scrutinize their expenditures during the guaranty period and make none which they are not prepared to justify on demand, they need apprehend little trouble.

In nearly all the permanent new duties which are added to the commission's work by the Transportation Act, such as the supervision of security issues, the granting of certificates of public convenience and necessity, the approval of leases, mergers and consolidations, accounting plays an important part.

There are many who believe that the weak spot in the armor of the present classifications prescribed by the commission is that they fail in sufficient degree to require uniform accounting for one of the chief items of the cost of operation, that item being depreciation through use, obsolescence or inadequacy of the units which make up the physical property. It is urged that this cost can be ascertained within reasonable limits, that it should be provided for regularly and uniformly, either by expenditures for maintenance or by contributions to a reserve fund for future renewals, and that the accounts should be so stated that it can be determined at any time whether or not and to what extent the carrier is meeting this part of the cost of operation.

Carriers in the past met this cost in many irregular ways—some by the use of reserve funds, some by reducing from time to time the book value of property through charges to profit and loss, others by charging to operating expenses or surplus the cost of additions and betterments. Many did not meet it at all. Under the present classifications this irregularity has been diminished, but the accounting for depreciation on fixed improvements is still optional, and there is no uniformity in the accounting for depreciation on equipment. Regardless of legislation, it had been the intention of the commission to give this very important matter further study; but as you know, the recent act lays upon us the definite mandate to "prescribe, for carriers subject to this act, the classes of

property for which depreciation charges may properly be included under operating expenses and the percentages of depreciation which shall be charged with respect to each of such classes of property, classifying the carriers as it may deem proper for this purpose."

In my judgment no more arduous or difficult task has been given us either by the old or by the new legislation. I call your attention to the fact that the mandate applies not only to railroads but to every carrier subject to our jurisdiction, including telephone, telegraph and cable, pipe lines, express, sleeping car and steamship companies. We shall undertake the task, however, with confidence that sound and valuable results can be achieved, and plans for the prosecution of the work are under way. Our Bureau of Valuation already has accumulated an immense amount of information in regard to the depreciation rates of various classes of property, and our Bureaus of Accounts and Statistics have similar information in regard to the accounting phases of the problem. It is our present purpose, subject to modification as the work progresses, to create a special section whose entire time and attention will be devoted to this work, with the duty of assembling data from all sources and bringing forward specific recommendations in the form of a report which will be opened up for public criticism and discussion before final action is taken.

In order that you may prepare yourselves for some of the questions which will arise I venture a few suggestions for your consideration, with the understanding that they in no way represent final conclusions. It seems to me that the practical use of a depreciation reserve or fund is not to act as an offset to the theoretical depreciation of the property, but to provide what may be called either a balance wheel or a reservoir, so that the company may be in a position at any time to make the renewals or replacement which first-class, up-to-date service demands without varying from a regular and even burden upon its operating expenses. In the case of certain classes of property it may be that the annual replacements, when the property is well maintained, average up in such a way that no reserve is necessary. Yet the accounting should disclose whether or not this standard of maintenance is observed. What is true of one carrier also may not be true of another, and care must be had not to prescribe rigid rules which make insufficient allowance for such variations. Furthermore, it will be necessary, I take it, to determine whether or not there shall be a real fund or a mere bookkeeping reserve, and if there is to be a fund to what extent and in what manner investment may be permitted, whether or not a certain portion should be maintained in the form of cash or liquid assets, and whether it should be credited with its own earnings upon what is known as the sinking-fund plan.

So much for our new duties. You will realize that I have attempted only an outline of some of the questions by which both you and we will be confronted and upon which we shall want your help. Before closing, however, I cannot refrain from mentioning another matter which is not brought to the front either by old or by new legislation, but which I conceive to be of prime importance. You know and I know that specific railroad rates have seldom been determined upon the basis of cost but by the exercise of judgment after all manner of factors have been taken into consideration. Without suggesting that there should be any revolutionary change in the methods of rate-making, I am yet impelled to the conclusion that insufficient attention has been given by railroad carriers to cost accounting. You ought to know and we ought to know from what classes of traffic the roads make their largest profits and whether or not and in what degree they are carrying freight or passengers in certain cases at an actual out-of-pocket loss. Moreover, it ought to be possible to develop statistics which will enable a more intelligent comparison of the operations of one railroad with those of another, so that it may be known where economy and efficiency reside. I realize the difficulties in cost accounting, particularly upon railroad properties, but similar difficulties have been surmounted in large measure in industries almost as complex. At all events, I think you will not disagree that more can be done than is now being done. I apprehend that this matter will grow in importance in the administration of the revised fourth section and in the development and extension of class rate scales throughout the country. It was brought forcibly to my own attention last winter in the perishable freight investigation, where an attempt was made by the carriers to base rates on actual cost, and the evidence disclosed the utterly insecure foundation for such an attempt in present methods of accounting.

In conclusion, may I express my appreciation again of the opportunity to be with you? After all, the railroads are merely public highways, lined with steel, upon which single carriers are permitted to operate. In our complex modern life, with its problems of distribution, these highways bear the same relation to the nation as the arteries and veins of the human body, and hardening or congestion of the arteries is as serious a disease in the one case as it is in the other. The vital thing is that the railroads should function properly without abuse of what may be called their powers of taxation. We are violent partisans in this country and too often are enthusiasts for the means rather than for the end. I hope we shall be able to keep our eyes on the results to be achieved, and if we do, and hold the public interest paramount, I am confident of success.

Report of the Executive Committee

The committee has held two meetings since the last annual meeting of the association, and begs to report on the various subjects that have come before it as follows:

Getting the Most Out of the Meetings. — Every annual meeting of this association is a brand new opportunity. What kind of opportunity and what use is to be made of it depend entirely on the individual.

It would look like a good idea for the chief accounting officer of a railroad to have the auditor of freight accounts, auditor of disbursements, auditor of passenger accounts, etc., attending the annual meetings, write out their impressions, what new ideas came to their notice, and any suggestions resulting from their contact with the other accounting officers at the meeting, or from the discussions. The chief accounting officer could also impress upon his fellow workers the desirability of being keenly interested in the exhibits of mechanical devices. Furthermore, the chief accounting officer might, with advantage, write out his own impressions of the annual meetings, mechanical devices and other situations with which he came in contact. He might even go further and submit to the president of the association any suggestions that would help in the administration of the association's affairs. An eminent philosopher once remarked that the acid test of a man's grasp and knowledge of a situation is whether he can and will put it into written words. A chief accounting officer represents not only the knowledge, training and experience of himself, but also the knowledge, training and experience of all the members of his staff. The problem is to make this all available for practical use.

Card Record Biography.—In his address at the New York meeting, President R. E. Berger referred to inquiries with reference to the record, experience and qualifications of some of our members received by the secretary from commercial concerns and others who were seeking the services of experienced men, and congratulated the association upon being thus recognized as standing in such a relation to the members themselves and with the business public. And Mr. Berger recommended that the secretary be authorized to collect and keep up currently data of a biographical and business experience nature in connection with each member. In accordance

with instructions from the executive committee, the secretary on October 28, 1919, issued a circular requesting such information as would be necessary to establish a card record biography of railway accounting officers.

Termination of Federal Control.—Your executive committee on October 13, 1919, adopted the following resolutions:

> That the committee on general accounts is hereby designated as the association's representative through which emergency matters incident to the termination of federal control shall be conducted, and it is authorized and directed to act for the association in all matters relating to such emergency, including matters incident to accounts and returns required by governmental authorities which may need prompt and decisive action, without referring such matters to the association for its approval, but shall be reported in the usual manner to the members of the association.

Commodity Classification.—In submitting the proposal regarding the new commodity statistics to become effective January 1, 1920, the Interstate Commerce Commission's representative indicated that the commission had in mind issuing, under order of the commission, its own commodity classification. The previous commodity classification for that purpose had been issued by the Railway Accounting Officers' Association in 1911. Ultimately it was decided that the Railway Accounting Officers' Association should issue the new commodity classification instead of the commission. A new R. A. O. A. commodity classification was compiled by a subcommittee of the freight committee, under considerable stress, and was issued by the association.

Membership Changes.—During the current year your committee has admitted into the association 121 new members. As of March 18, 1920, the association has 848 active members, representing 318,945 miles of railroad, also certain express companies and water carriers—an increase (as compared with April 21, 1919) of 68 active members. The association is now carrying the names of 21 persons on its honorary rolls.

Attendance at Committee Meetings. The committee has adopted the following resolutions:

Any member of a committee of the Railway Accounting Officers Association (except the Executive Committee) who hereafter fails to attend three consecutive meetings of such committee shall forfeit his membership on that committee. No member shall serve two consecutive terms as chairman of any committee of this association.

Affiliation with the Association of Railway Executives. Thomas DeWitt Cuyler, Chairman of the Association of Railway Executives wrote J. A. Taylor, Chairman, Railway Corporate Accounting Conference, on April 14, 1920 as follows:

Dear Mr. Taylor:

Referring to your letter of April 1 in reference to the dissolution of the Railway Corporate Accounting Conference and its amalgamation with the Railway Accounting Officers' Association, I beg to say that at a meeting of the standing committee held in Chicago on April 9, the recommendations contained in your letter were approved and I am authorized to say that we are prepared to take over as a part of our organization the Railway Accounting Officers Association, of which Mr. McDonald is president.

Mr. McDonald wrote Mr. Cuyler in part:

As our organization has never had a head or superior association to which it could look for guidance and counsel, your advice that we are now a subsidiary section of your organization is very gratifying. Both on behalf of the members of our association and on my own, I beg to assure you that our work henceforth will be characterized by the same spirit of co-operation and loyalty that has inspired and guided us in the past.

The committee approves the action shown in the above correspondence.

This report is signed by A. D. McDonald, president.

Committee on General Accounts

Separating Operating Expenses. The committee urged that the consideration of any change in the rules for separating operating expenses between freight and passenger services differing from those in effect prior to Federal control, be postponed at least until January 1, 1921. On December 1, 1919, the Interstate Commerce Commission prescribed rules governing the separation on large steam railways, effective on January 1, 1920.

Commodity Statistics. The committee urged on the statistician of the Interstate Commerce Commission that the new rules for compiling commodity statistics be deferred until 1921.

Per Diem Settlements. The committee, acting on a report made by a committee of the American Railroad Association, asked the Association of Railway Executives to work for delay on the plan proposed for the settlement of per diem between carriers at the expiration of Federal control, which plan embodies the establishment of a clearing house through which all transactions regarding per diem are to be handled. The committee does not oppose the suggested plan of a clearing house in its entirety, but believes that on a matter of such importance, involving as it does both physical and financial transactions, no decisive action should at this time be taken other than the re-establishment of the plans in effect prior to Federal control. The matter should be given most careful and joint consideration before any final action is taken to put the proposed plan in use.

The report was signed by A. M. Plant, chairman.

Freight Accounts

The committee has held five meetings during the year, and reports the following conclusions:

Overcharge and Agency Relief Claims. Acting on amendments to the constitution, providing for mandatory overcharge and agency relief claim rules submitted by the committee last June, the meeting adopted the following amendments to the constitution:

(1) To add to Article XI the words "Except as provided in Article XII," so that Article XI as then amended would read, "Except as provided in Article XII, this constitution can be changed only by amendments to be offered at any regular meeting by a vote of not less than two-thirds of a quorum of members then present." (2) To add to the constitution Article XII, reading: "The following rules, relating to overcharge and agency relief claims, shall be mandatory and binding upon carriers operating in North America that are members of the Railway Accounting Officers Association and shall become effective and operative on the date on which this article is adopted by the association.

Forwarding Original Abstract. The committee recommends that the settling carrier shall retain original abstracts and division statements, sending first carbon copy to waybilling carrier and legible copies to each intermediate carrier in time to reach them by the 18th of the succeeding month.

Standard Form of Freight Bill. The committee has carefully considered the question of a change so that the columns would agree with those on the waybill to insure a more correct rendering of the freight bill and avoid having shipments waybilled prepaid and the freight bill made collect; but believes that no change should be made in the form at this time; carriers should call attention of agent when incorrect freight bills are made.

Direct Correspondence With Agents of Other Carriers. The committee recommends that wherever the conditions warrant or require direct inquiry, an accounting officer may

send direct inquiry to agents of another carrier, enclosing, for reply, a self-addressed envelope, with postage stamp, if necessary for transmission by United States mail. It would be desirable for each carrier to outline, to its agents, its policy regarding replies to direct inquiries made of its agents by accounting officers of other roads.

Method of Writing Waybills. The committee recommends that all waybills be prepared by the use of a typewriter, pen and ink, or indelible pencil. To overcome the obvious objection to the use of indelible pencil, wherever it is used, the writing should be set by a press or damp cloth. Under no circumstances should a black lead pencil be used.

Weighing Cars Enroute. The committee calls attention to the importance of weighing freight, both carload and less than carload, and the necessity of having more track scales properly located, and the institution of automatic warehouse scales. Particularly is it desirable to ask the hearty co-operation of the operating and transportation departments in this matter. The need is a necessity for more attention to the matter of weighing rather than for the adoption of any particular plan which it is not believed can be made general.

Use of Large Envelopes. The committee recommends that for ordinary correspondence, handled through the United States mail, carriers should use envelopes in sizes like the standard sized stamped envelopes sold by the Post Office. In every case particular attention should be given to having the envelope adapted to its contents.

Prepaid Charges Billed in Error. The application of the principles of accounting as contained in PS&A Circular No. 61 of January 4, 1919, has been of material advantage and should be continued. It is therefore recommended:

(a) That when a shipment is contracted for "Prepaid," and the shipper is a credit patron, the bill of lading be stamped over the agent's signature: "The charges on this shipment fully 'Prepaid,' and the waybill stamped 'Fully Prepaid.'

(b) That when a shipment is contracted for "Prepaid," with a shipper other than a credit patron, the bill of lading to be receipted, in the space provided therefor, for the amount collected.

(c) That in the event of an error in billing "Collect" or "Insufficiently Prepaid," a shipment contracted for "Fully Prepaid" shipment to be delivered, and agent of billing carrier requested to make necessary adjustment. Billing agent must furnish immediately a "Prepaid Only" waybill or correction notice to fully prepay the charges.

(d) That in the event of an error in billing "Collect" or "Insufficiently Prepaid," a shipment contracted with a shipper other than a credit patron, the additional amount necessary shall be collected at destination and waybill correction notice, increasing freight charges to proper basis, duly issued, the total prepaid to be increased only upon authority of the waybilling carrier.

Tracing Unreported Waybills. To facilitate the checking of unreported waybills, it is the committee's opinion that interline forwarded abstracts should be sorted in forwarding station order and in so far as possible, waybill number order, regardless of the road rendering the abstract. The waybills that are reported can be readily checked on the forwarded report, and the month and year in which reported shown. In this manner, by referring to the forwarded report, it can readily be determined the month in which reported. After the checking is completed, the unreported waybills and the open items on the advances and prepaid can be readily drawn off. When replying to tracing carrier, the actual reporting to that carrier should be shown.

Copies of Waybills. The committee recommends that no copies of waybills be furnished to destination or intermediate carriers except, that for specific purposes, copies of each individual waybill requested should be furnished.

Waybill to Accompany Car. The committee recommends that paragraphs 84, 85, 86, 87 and 150, of the 1917 synopsis be cancelled, and that the following be inserted in lieu of paragraph 150 of the 1917 synopsis:

> Waybills for carload freight must move with the cars; waybills for l. c. l. freight must move with the cars when practicable; otherwise they will be mailed in accordance with the requirements of each carrier to junction, transfer, break-bulk or destination station. When waybills for a solid car of l. c. l. freight are mailed, a separate waybill for the car movement must be made on standard form, in duplicate, showing destination and complete routing, and bear notation:
>
> "Merchandise car. Waybills mailed to ....."
>
> The original car movement waybill shall accompany the car, the duplicate shall be placed on top of the revenue waybills, all securely fastened together and mailed as outlined above. Agents receiving merchandise waybills without car shall take immediate action to locate car and forward waybills in accordance with the information obtained, and connecting carrier's requirements to junction, transfer, break-bulk or destination station. Single waybills which become separated from the freight shall be promptly mailed to destination. Forwarding junction agents must stamp car movement waybills.

The committee also recommends that Standard Form No. 111, "Interline Card Waybill" be cancelled.

Revision of Forms. The committee will give consideration to whatever revision is needed in the present freight accounting forms and will welcome suggestions and criticisms. The report was signed by A. J. Moran, chairman.

Passenger Accounts

The committee has held three meetings during the year.

Handling Scrip by Honoring Agents. The committee recommends that tickets and baggage checks issued in exchange for scrip be taken into agency accounts at tariff fare or rate and so reported. The manner in which agents shall receive credit for scrip detachments is left to discretion of carriers.

Clergy Fare Certificates. Clergy certificates are particularly susceptible of manipulation. There is no known accounting practice that will adequately protect the revenues of the carriers in connection with such certificates. From a financial standpoint, it would obviously be to the interest of the carriers to withdraw the reduced fares for this class of traffic, but if this is not found practicable or desirable the committee believes that the form of certificate should be altered or its use should be surrounded with added protective features. The committee recommends that the secretary transmit the foregoing to the American Association of Passenger Traffic Officers.

Reporting Numbers of Interline Tickets. The committee recommends that when reporting interline tickets from a given selling station of the same form, via the same route, to different destinations, the commencing and closing numbers representing the entire sales of such form should be shown opposite the first destination, using a separate line for void tickets, if any, the separate numbers of which should be shown, so that all the entries will equal the number of tickets as represented by the opening and closing numbers of the form. When reporting multi-road, combination, or skeleton forms, also any other forms where the numbers do not run consecutively, the separate numbers to each destination should be shown. The association's recommendation as contained in paragraph 192 of the 1917 synopsis is recommended to be rescinded.

Tax on C. O. D.'s.—To comply with the rulings of the internal revenue department, it is the understanding of the committee that war tax on C. O. D. checks should be paid by carrier making the collection, except that when collection is made by Canadian carriers, the war tax should be reported to United States carrier issuing the C. O. D. check, who will make settlement with the internal revenue department.

Federal and Corporate Scrip Accounts. It is the sense of the committee that a new form of scrip, of distinctive color, or the present scrip coupons bearing a distinguishing marking should be prepared and placed on sale. Following the action of the passenger committee and as a result of its sug-

gestion, the various passenger traffic committees issued instructions in conformity with the foregoing. Where scrip bears the designation as outlined, the honoring carriers should separate the two forms on monthly statements (marked "Federal" or "Corporate") sent to the issuing carriers.

Standard Forms No. 10. The committee recommends that Standard Form No. 10, Recapitulation of Interline Passenger Traffic Reports, be abolished and that Paragraph No. 185 of the 1917 synopsis be amended accordingly.

The report was signed by F. M. Brine, chairman.

Disbursement Accounts

The committee has held three meetings during the year, and reports the following conclusions:

Addition and Betterment Accounting. This subject came before the association at St. Louis, 1918, and New York, 1919, and was left with this committee for consideration. Since the last annual report of this committee, copies of Valuation Order No. 3, second revised issue, promulgated by the Interstate Commerce Commission, have been received by all common carriers. This valuation order prescribes forms indicating the minimum information required for the commission's purposes for the following records: Authority for expenditure; registers of authorities for expenditures; roadway completion report; semi-annual report of changes in equipment; record of property changes. The establishing of the forms of the above records still leaves to the option of the individual carrier the accounting forms for recording detailed records of labor expended and material applied for addition and betterment purposes, the forms for recording, consolidating and reporting such detailed expenditures, and the forms of records to be maintained, in the offices in which the permanent file copies of such expenditures are kept. After careful consideration of the accounting forms in use by railroads generally for such purposes, it has seemed desirable that at this time this association adopt the following forms: R. A. O. A. Standard Form No. 204—Detailed report of disbursements under Authorities for Expenditures; R. A. O. A. Standard Form No. 205—Abstracts of disbursements under Authorities for Expenditures; leaving for future consideration, all forms which may ultimately be decided to be advantageous in securing uniformity in the compilation of particular or specific information, relative to capital expenditures for extension and improvements to railway property.

Pay for Shop Foremen When Shops Are Idle.—The committee is of the opinion that pay and expenses allowed for the period of a strike, at the regular established rates, should be charged to the accounts to which these items are ordinarily chargeable. Additional or special allowances of pay and expenses for duties performed should be charged to the operating expense accounts appropriate for the specific services rendered.

Definition of Joint Facility. The committee suggests that the association recommend the revision of the definition contained in Accounting Series Circular No. 14, issued by the Interstate Commerce Commission, to read:

"Joint tracks, yards and other facilities are tracks, bridges, yards, stations, towers, turn tables, water stations and other facilities which are regularly operated by one carrier for the benefit of one or more other carriers.

"The company operating such joint tracks, yards and other facilities will include the amount paid for maintenance and operation of such joint yards and other facilities in its detailed primary accounts of operating expenses (other than the joint facilities accounts), crediting the amounts collected from other users to the appropriate joint facility credit accounts in operating expenses. The carriers, other than the operating carrier, jointly using such tracks and facilities will charge the amounts paid by them to the appropriate joint facility debit accounts in operating expenses, in accordance with the distribution shown in the bills of the operating carrier.

"Taxes upon property used jointly should be charged by the owner to income account No. 532, railway tax accruals, and the proportion paid by the user should be charged to income account No. 541, joint facility rents, and credited to income account No. 508, joint facility rent income, by the owning carrier.

"Amounts paid for the joint rental of railroad facilities should be charged to income account No. 541, joint facility rents, and credited by the receiving carrier to income account No. 508, joint facility rent income.

"When the amount paid for the use of joint facilities is based upon a rate per ton mile, rate per train mile, or upon a lump sum basis, such amount embracing the cost of maintenance, operation, taxes and rentals the respective carriers interested should jointly agree upon the division among the joint facilities expenses and rental accounts involved before bill is rendered by the operating carrier.

"Amounts collected by an operating carrier for rent of rooms in stations, restaurant, news stand, or other privileges and concessions in stations, storage, parcel room receipts and analogous items, in facilities used jointly with other carriers, should include such receipts in the appropriate primary accounts in operating revenues and the amounts paid to the using carriers for a proportion of such receipts should be charged to operating revenue account No. 152, joint facility, Dr., and credited by the receiving carrier to operating revenue account No. 151, joint facility, Cr.

"Union depot, ferry, bridge and similar companies, operated for the joint benefit of tenant lines, the revenues, expenses, taxes and rentals being distributed upon a user or other agreed basis, should be accounted for as Joint Facilities.

"(Exceptions: Freight charges assessed at tariff rates by the operating company on materials and supplies used in the maintenance and operation of joint facilities shall be credited to freight revenue, and charged by the debtor company to the appropriate joint facility accounts in operating expenses. Payments or receipts on account of joint facility arrangements with electric railways or telegraph and cable companies shall be treated in the joint facility accounts by steam roads, regardless of the distribution by the other parties to the arrangement. When a joint facility is a terminal operation on one line and a road operation on the other, the amounts paid or received shall be charged or credited to "operating joint yards and terminals," or "Operating joint tracks and facilities" as may be appropriate for each carrier.)"

Standard Forms for Rendering Bills. The committee is of the opinion that a standard form for rendering of bills by firms from whom material is purchased is essential, and recommends the adoption of a form 8½ in. by 11 in. (Form No. 201). The adoption of a standard form for the purpose described should result in the supply firms printing their own supply of the standard form.

Electric Sorting and Tabulating Machines. Realizing the advantages to be derived from the use of mechanical devices in disbursement work, the committee has endeavored to ascertain to what extent electric sorting and tabulating machines are used in connection with work in disbursement offices. The investigation included all roads using or having used electric sorting and tabulating machines in disbursement work, so far as the committee could ascertain, but the committee was able to find but nine such roads.

The experience of these roads, however, may be an indication of the class of work on which the machines can be used, but it is not the intention of this report to express an opinion as to the merits or the disadvantages of the machines as applied to disbursement work, the report being a summary

of the replies received and is intended purely as a matter of information. The mileage of roads using the machines ranges from 1,053 to 9,581.

In order to operate under the system, it is necessary to devise a more or less elaborate system of number symbols depending upon the extent to which the machines are used; that is, accounts are designated by one set of numbers, states by another, operating divisions by a third, accounting divisions by still another set, etc., each class of information having a particular set of numbers assigned to it.

The information is punched on the cards by means of hand key punch or gang punch machines, the gang punch being used when the same information, such as dates, operating or accounting divisions, etc., are shown on a large number of cards and the cards may be punched with this information in advance. The detailed information such as account numbers, charges to accounts, etc., being punched on each separate card by means of the hand punch operated in the same manner as a non-listing computing machine.

The cards are of uniform size and thickness, being specially printed for use in connection with the machine system. Color schemes of cards are used to indicate sources from which the charges or other data are obtained, such as, one color for vouchers, a second for bills, a third for payrolls, etc., in order to be able to distinguish at a glance the class of expense or information contained on the card.

The regular equipment consists of hand key punch machines which are purchased outright; electrically operated sorting machines by means of which the cards are sorted to obtain the required information and electrically operated tabulating machines through which the cards are run to obtain totals.

The sorting and tabulating machines are rented from the manufacturers at a specified amount per month. Additional equipment consists of gang punch machines by means of which a number of cards all having the same information may be punched at one time and proof punching machines, hand operated in the same manner as the key punch machines, by means of which errors punched in the original card may be detected before running through the tabulating machines.

The investigation covered nine roads having had the machines in operation for periods ranging from one to nine years, the maximum full equipment employed being four sorters and eight tabulators; the minimum being one sorter and one tabulator, although one road which confines the operations to bills, vouchers and material accounts, is doing the work on the equipment of another office and using the machines only part of the time. One other road, which confines the work purely to a record of equipment, is doing the work on the equipment of one of the other accounting offices.

Five roads report using the machines for the distribution of all debits and credits to operating and other accounts from which the monthly analysis of operations is compiled, also compiling operating results by divisions.

One road distributes vouchers, bill and material charges and credits only, to operating and other accounts.

One road has equipped its largest shop with machines for assembling time of employees for payroll purposes and for the compilation of shop cost data.

One road compiles casualty statistics only, that is, loss and damage to freight, baggage and personal injury statistics by commodities, causes, districts, etc., by means of the machines, but has not extended their use to other branches of disbursement accounting, although the question of preparing statement of employees and their compensation by means of the machines is now under consideration.

One road reports using the machines only to obtain record of equipment for purposes of typing loose leaf unit record of locomotives and cars, the cards being used as a working medium for depreciation reports, annual and valuation reports, etc.

The replies received indicate that the roads using the machines extensively in disbursement work have divisional accounting in effect, the cards being punched from division reports, although in the material accounting one road uses a combination requisition and punch card, the material being ordered on information posted to the card and the card punched when received in the accounting office.

Five roads report distributing payroll charges and credits to accounts by means of the machines, one road distributing locomotive department payrolls only.

In addition to distributing charges, a number of roads have applied the machines to the compilation of the report of employees and their compensation, which is rendered to the Interstate Commerce Commission.

With the installation of the machines on such roads as used the machines extensively in distributing charges and credits, the former hand posted records by accounts were dispensed with and simple records of vouchers and bills showing only voucher number, brief description and total of the payment substituted.

Cards after having been punched are balanced against these records to insure correctness of punched amounts. Some roads, however, go to the extent of posting and footing account numbers, division numbers, etc., in the registers and totaling these same numbers on the cards by means of the machines as a verification of the correctness of the entire punching of the card.

It is claimed that it has not been necessary to install additional records except assembling sheets because of the elimination of the former hand posted distribution sheets and that the elimination of these former detailed records has not resulted in any difficulty in obtaining additional information when required at a future date.

No reconcilements of outstanding amounts are arrived at by means of the machines, the simplified voucher and bill registers being used for this purpose.

Extensive casualty statistics are prepared by one road covering loss and damage to freight and baggage and personal injury accounts and the preparation of individual locomotive repair costs by another. Aside from these two roads, so far as the information furnished indicates, no statistics are compiled by means of the machines except those relating to the distribution of operating expenses by accounts divided between freight, passenger and undivided for the I. C. C. report, and further subdivided by states. In addition to this, wage statistics for the I. C. C. are arrived at through the medium of the machines. In distributing to operating accounts by states and operating divisions, it is claimed that it is necessary to punch but one card, although one road reports the necessity of punching a separate card for each account when handling material distributions.

All roads report a saving through installation of machines. Some claim a material saving and others no material saving but better results being obtained. It is claimed that in one instance the machines were installed to meet special requirements which could not otherwise have been obtained except at prohibitive cost. It is also claimed that results have been satisfactory, the machines assisting materially in obtaining figures at an earlier date than they otherwise could have been obtained and that additional information can be obtained at a minimum cost.

One road, however, reports having installed the machines in the disbursement office and in one of the large shops, but after a short period dispensed with the machines in the disbursement office, claiming the volume of work was not great enough to justify their continuance. They were, however, continued in the shop for payroll and shop statistical purposes.

Where the machines have been continued it is claimed

that the principal advantages are the saving of time and expense in the accumulation of original data and the compilation of additional data when called for at a later date and the elimination of errors. It is claimed that no difficulty has been encountered in obtaining additional data after a lapse of time.

The principal disadvantage seems to be in that the large volume of cards requires considerable filing space, also the possibility of misfiling cards and careless handling results in frayed edges making it necessary in some instances to repunch cards. Some roads have overcome this by placing a special file clerk in charge of the cards. This disarrangement of the cards, misfiling, etc., has apparently resulted in some confusion at times.

One road using the cards for equipment purposes finds it necessary to insert certain information on the card with pen and ink or typewriter because of the various purposes for which it is used. It is claimed by one road that where only one class of information is required, machines will accomplish no saving but will prove a disadvantage.

On some roads the practice has been to punch one card for debits and another card for credits, totaling each and deducting one from the other. This has been overcome by at least one road by the use of complements in the handling of credits, that is, punching the 9's up to the first figure in the amount of the credit and subtracting the balance except the first unit from 9 and punching those figures, subtracting the first unit from 10 and punching it. By so handling the credits automatically deduct themselves.

Analyzing Charges for Operating Expenses. The committee recommends, as a means of providing a check of the charges to the primary accounts under the account operating expenses, or to suspense accounts, the use of a blotter especially designed to afford a comparison of the total monthly charges to such accounts, the current accounting period with preceding ones. The blotter suggested takes the form of columnar sheets of twelve and fourteen columns, the columnar headings being the primary operating or other accounts, number and title, and the left hand marginal reference the twelve months of the fiscal year, provision being made for semi-annual sub-totals. Such a blotter to be used in conjunction with a ledger sheet for each of the primary operating or other accounts, to which shall be posted, for condensing and analytical purposes, the charges from pay-rolls and the items appearing on bills, vouchers, etc., with suitable description and document number reference from which totals may be posted to the proposed blotter.

That the blotter suggested may be extended, if desired, to provide separate sets of sheets for each of the several sources of charges, namely, payrolls, vouchers, bills, etc., likewise to provide for a sub-division of the sources of charge according to accounting districts. The ledger sheets, if the blotter is so extended, should carry column headings corresponding to accounting districts, also suitable space for grouping the postings according to sources of charges, and inserting sub-totals by sources of charges for convenience in posting to blotter.

The report was signed by H. W. Johnson, chairman.

President's Address

A. D. McDonald
Vice-President Southern Pacific

The reports of your various committees contain detailed and enlightening accounts of the things accomplished during the year, and the enormous amount of work performed. Both on your behalf and on my own, I thank most sincerely the committeemen and chairmen for their excellent work; and our genial and efficient secretary and his associates. It would be helpful for our secretary to make a brief annual report summarizing the year's work and giving us the benefit of his observations, as he is in more intimate touch with our affairs than any one else.

Commissioner Eastman has told you of the plans of the Interstate Commerce Commission with respect to the revision of the accounting rules. No one denies the advantages of uniform accounting, but I seriously doubt whether these rules should be changed materially at this time. We have had many changes in the past. Some of these have disturbed and destroyed comparisons; and while changes in accounting rules to keep pace with the times are as necessary as the pruning of an orchard, I hope that the commission will proceed slowly. I am not so sanguine as to believe that our rules will ever be perfect, neither do I advocate that the commission remain idle, but I do believe that the commission should not issue a revised set of accounting rules before January 1, 1922. Meanwhile, I think it desirable that the members of this association should continue the study of the rules that was begun at the request of the commission after last year's meeting; and that, from time to time they should submit to the secretary suggested changes. The representatives of the commission also, particularly those in the field who are in daily contact with the application of the rules, are in an especially favorable position to propose changes. After we reach a normal basis in the daily routine of our business affairs at home, the representatives of the commission and a committee of this association should get together to study and "Fletcherize," so to speak, the recommendations submitted, and then should take up the work of revising the rules. I see no difficulties that can arise from so conservative and judicious a procedure, but I do see difficulty if the commission rushes ahead and issues new classifications of rules that are to become effective before January 1, 1922. I fully realize that knowledge comes of doing, and that never to act is never to know, but if this work is rushed now, it will only mean that later on more changes will have to be made, with the result that comparisons will be further destroyed.

A vital question in the minds of many of us has always been, how far the Interstate Commerce Commission should go in prescribing rules to produce uniform accounting. Little discernment is needed for one to know that in many respects the accounts of railroads are not kept in a uniform way. As pointed out by Commissioner Meyer in his letter that was read at yesterday's session, our experience during Federal control brought this fact to our attention more forcibly than ever before. Though the commission should not go to the extreme in prescribing rules that will produce uniformity, I do believe that it ought to go further in that direction than it has hitherto gone. We all know that revenues are not accounted for by all railroads in a uniform manner; we know that each railroad has its own method of keeping agents' accounts; we know that various practices exist with respect to the cash and material accounts; we know that accounting for taxes, for the so-called depreciation on equipment, and the retirement of property is not handled uniformly on all lines; and we also know that other methods differ to a greater or a less extent.

In the past it has been one of our few privileges to arrange our office and inter-department methods and, to a limited extent, our inter-road methods, in accordance with our own ideas and judgment. While I dislike to advocate that we surrender these privileges, it does seem to me that in the interest of uniform accounting we shall have to revise some of our ideas to conform to the spirit and the requirements of the times. To progress, we must understand the thoughts, the desires and the purposes of those to whose rules and orders we are subject, and of those with whom we live and associate.

If we had uniform accounting in connection with all the things I have mentioned, many advantages would accrue, and I hope to see the day when this association shall have in

print a book, outlining in detail standard instructions and samples of forms covering railroad accounting in all its branches. Local conditions will always require special treatment, as for example, a particular railroad handles certain accounts at divisional headquarters; but, subject to some exceptions of this kind, uniform accounting could, and should be universally adopted.

The past year has been an eventful one in the railroad world. The most important occurrence, and one which gives special significance to our meeting this year, was the passage of the Cummins-Esch railroad bill. Owing to the almost unlimited powers granted to the Interstate Commerce Commission under this act, we enter upon a new era in railroad history, and certainly no man can say definitely what the outcome will be.

[The speaker here referred to the report of General Counsel Thom on the Cummins-Esch bill, and continued.]

The carriers are on trial, because an effort has been made to extend to them help of a substantial character in the performance of their public duties, and public opinion will hold them to a strict accountability for the fidelity and efficiency with which these duties are performed. The great lesson to be drawn from Mr. Thom's statement is that the interests of the three agencies—the commissions (representing the shippers, the consumers, and the general public), the labor unions, and the railroads—are identical, and that they are partners in this great enterprise. Upon the success or the failure of their efforts depends not only the future ownership of the railroads, but also, in my opinion, the very future of our form of government.

There is an old, old story of an Arab who desired to test which of his three sons loved him best. He sent them out to see which of the three would bring him the most valuable present. The three sons met in a distant city and compared the gifts they had found. The first had found a rug on which he could transport himself and others whithersoever he would. The second found a medicine which would cure any disease. The third found a glass in which he could see what was going on at any place in the world. The third used his glass and saw his father ill in bed. The first transported all three home on his rug. The second administered his medicine and saved his father's life. Now, the perplexity of the father when he had to decide which son's gift had been of most value to him, illustrates very fairly the difficulty of determining what particular interest is most essential to the success of this experiment in conducting the railroads. Just as the old Arab's life could not have been saved without the co-operation of his three sons, just so, in my opinion, the life of the railroads cannot be saved unless these three interests—the commissions, the labor unions, and the railroads—co-operate. Let us hope that all these interests have been made wise by experience, and that as we stand today in a wider world we shall move forward with a more conscious purpose along more open ways.

While in years gone by some of us have looked upon these meetings as a short vacation, I conceive that you are all here this year because you are thoroughly alive to the new condition of affairs that confronts us. I conceive that you are here because you know the welfare of this association to be inseparable from the welfare of the railroads, and I conceive that you are here because you feel that in order to meet the changed conditions it may be necessary for this association to propose some changes in our accounting methods and practices. Never before in railroad history have questions so vast, so complex, and so fraught with trouble, presented themselves; and I most heartily concur in Mr. Commissioner Eastman's statement that in this mighty upheaval this association is bound to play a large and important part in pointing to the right and proper way out of many of the difficulties. Gentlemen, I feel that the dawn of a more glorious day has risen upon our profession. This faith is not a mere delusion. It is a living faith, arousing in each of us the impulse to strong and persevering effort, and spurring us to honorable exertion.

This association has accomplished a great deal in many directions, but much still remains to be done. The changed conditions brought about by the recent legislation, imperatively demand more intelligent work than ever before. New situations have been created, new relations established, and it is the office, and should be the purpose, of this association to assist in every way to regulate and systematize the accounting affairs of railroads so as to produce the best possible results. I repeat, that I do not believe in violent changes at this time, nor do I expect them. As new situations develop, we must dispose of them in an orderly way and not allow ourselves to become stampeded. As you cannot transplant a tree frequently and expect it to bear fruit, so you cannot continually make radical changes in accounting rules or in anything else and expect the best results. Whatever we think of the past, whatever we may fear or hope for the future, we should turn that experience and practical sense which have developed our accounting methods to their present high standard, to the cultivation and development of whatever systems or methods this new railroad era may require. Here and now, if ever anywhere at any time, there is need of wise counsel, and our work henceforth should be characterized by the same keen relish for high enterprise and love of excellence that has inspired and guided us in the past.

Election of Officers

After the president's address the election of new officers was held, and J. G. Drew, vice-president of the Missouri Pacific and first vice-president of the Railway Accounting Officers' Association, was elected president of the association, succeeding A. D. McDonald. J. J. Elkin, Controller of the Baltimore & Ohio, and second vice-president of the association, was elected first vice-president; and L. G. Scott, vice-president and controller of the Wabash, was elected second vice-president of the association.

Three new members of the executive committee to serve two years each were elected: E. A. Stockton, controller of the Pennsylvania Railroad; A. P. Foss, controller of the Maine Central, and Charles A. Lutz, vice-president of the American Railway Express. F. W. Charske, controller of the Union Pacific, was also elected a member of the executive committee to serve one year.

A CO-OPERATIVE GENERAL STORE has been started by employees of the Union Pacific at Junction City, Kan., with the intention of meeting the high cost of living. The organization is capitalized for $5,000 and 80 per cent of the stock is owned by railroad employees. The railroad company has no interest in the store. Goods will be sold to the stockholders at wholesale prices, plus overhead expenses.

JOHN H. MILBURN, office engineer of the Baltimore & Ohio, has been appointed representative of the American Railway Engineering Association on the Advisory Council to the United States Board of Surveys and Maps. This council will be composed of one representative from each of the major engineering associations and will function in behalf of the public with the newly created board of surveys and maps of the federal government.

HANDLING FREIGHT IN NEW YORK.—As an example of the merchants' difficulties in New York during the past month, it is reported that a marketman of Manhattan, running short of meat, was informed that perhaps he could get a consignment which had arrived from the west by going across the Hudson river with his truck and taking the meat from the refrigerator car in the freight yard. This he did, but to get the meat to his wagon he was obliged to take it out through the hatches in the car roof and carry it across the roofs of 15 cars on 15 tracks.

Another Study of Transverse Fissures

THE INTERSTATE COMMERCE COMMISSION has just issued a report prepared by the chief of the Bureau of Safety on the derailment of a freight train on the Chesapeake & Ohio near Hardware, Va., on January 7, 1919, which resulted in the death of two employees. The derailment was caused by the failure of a 90-lb. rail in which a number of transverse fissures were found. A study of this rail was made by James E. Howard, engineer-physicist of the commission, whose conclusions are summarized briefly as follows:

Investigations on the occasion of different previous accident reports have defined the strains and stresses which are peculiar to and inherent in rails, conditions which are inseparable from the method of carrying heavy loads on wheels. All rails are subject to internal strains which wheel pressures induce. Independent of such other indications as there may be, which are indexical of the properties of the steel, failure, whenever it occurs, is the result of overstraining forces. There are two comprehensive questions in the rail problem, namely, what are the loads or stresses which rails can endure successfully, and what are they required to do in service.

All rails are exposed to substantially the same kind of stresses, differing, however, in degree. Information, based on reliable track data, is needed to point out definitely what conditions of service are present which lead to this type of fracture in rails which have passed prescribed specifications and have been accepted as satisfactory rails. If the tests for acceptance are inadequate for their purpose, provided relief lies in that direction, they should be modified along the necessary lines to accomplish their purpose.

Or, if the limit of endurance of rails has been reached, that fact should be made clear. Since it is a question of degree in all cases when steel fails under stresses, the relation between the ability of the rail to sustain long-continued stresses and the permissible weight of equipment should be established.

The discovery of shattered zones in the heads and bases of rails gave encouragement, for a time, that a cause for their early failure, or premature failure it might be called, had been found, the elimination of which would restore a margin of safety in rails, in locations where they are now breaking. Whether these hopes will in a measure be realized it is yet too early to state. The display of transverse fissures in rails in which diligent search has so far failed to reveal shattered metal indicates their development is not basically dependent upon the presence of this particular defect.

In the investigation of rails which have failed by transverse fissures attention has been directed intensely to their physical properties and structural state. The results have brought about a clearer conception of the phases through which rails pass, which may be held as precursors to rupture. No common physical defect has been discovered to the presence of which transverse fissures may be ascribed. Some grades of steel are more prone than others to develop such fractures. The interior origins of transverse fissures are explained by the engineer-physicist on physical laws.

Whether rails are likely to fail by transverse fissures or not appears to depend upon track conditions being unfavorable or favorable. With such abundant opportunities as are afforded by the combined efforts of the railroads of the country to acquire the necessary information, this phase of the subject should be actively entered upon and brought to a conclusion. In respect to the presentation of data upon transverse fissured rails it is felt that information upon the relation of equipment and service conditions to their formation has not kept pace with the investigation of the physical properties of the steel, a deficiency which calls for early correction.

I. C. C. Creates Bureau of Finance

W. A. COLSTON, of Louisville, Ky., heretofore general solicitor of the Louisville & Nashville, was sworn in on May 10, as director of the newly created Bureau of Finance of the Interstate Commerce Commission. The director of finance, according to the commission's announcement, will be charged with the supervision of the financial activities and duties placed upon the commission by the transportation act, approved February 28, 1920, including certificates for disbursements from the revolving fund of $300,000,000 provided for by section 210 of the act, the issuance of all railroad securities after 120 days from the date of approval of the act, the regulation of intercorporate relations of interstate carriers, the plan for the consolidation of the railway properties of the United States into a limited number of systems, the recapture of excess earnings of railways and the financial arrangements involved in the building of new lines and abandonment of old lines of railway.

Col. W. A. Colston

Mr. Colston has been connected with the Louisville & Nashville Railroad for nearly 30 years, having entered the service of that company in 1891 in a subordinate capacity and having advanced through various grades to the position of assistant controller in active charge of all the records, accounts and statistics of the company. From his position as head of the accounting department he was transferred to the law department of the company as commerce attorney and upon the death of the late Albert S. Brandeis about seven or eight years ago succeeded to the position of general solicitor of the company. Mr. Colston brings to his new position a broad experience both in accounting and in law, with particular reference to the traffic, operating and financial affairs of railroads, and is therefore peculiarly fitted for the position which he has assumed.

Mr. Colston has also had a wide experience in the military service of his state and of the United States. During the Spanish War he served in Porto Rico as a captain of the First Kentucky Infantry, U. S. Volunteers. He has been a commissioned officer in the National Guard of his state for about 25 years and during the Mexican border troubles served in the El Paso district as colonel of the First Kentucky Infantry in federal service. Upon the declaration of war with Germany, his regiment was converted to artillery and he served as its commanding officer under its new designation, 138th Field Artillery, both in this country and in France. He returned from France in command of the 63d Field Artillery Brigade and upon muster out of the service resumed his old duties as general solicitor of the Louisville & Nashville Railroad Company, which he pursued until his appointment by the commission as director of finance.

THE PHILADELPHIA ELECTRIC COMPANY, during the first weeks of the railroad strike, used up its coal so closely that at one time there was only a single day's supply on hand, and the stock was replenished only by fifteen employees from the company's office going out and manning freight trains to bring in the needed coal.

Commission Asked to Exercise Emergency Powers

Railroad Executives Say Transportation Conditions Require Action Similar to That During the War

WASHINGTON, D. C.

EXERCISE of the emergency powers conferred upon the Interstate Commerce Commission by the car service section of the transportation act to assist the carriers in dealing with the developing transportation crisis resulting from the shortage of equipment and other facilities that has accumulated during the war period and emphasized by the switchmen's strike, was formally requested in a petition filed with the commission on May 15 by the executives of 23 railroads. The carriers represented to the commission that they are unable themselves to deal adequately with the situation, and desiring to do their full duty, felt it necessary to take advantage of the powers placed in the hands of the commission which are not available to the railroad organizations, particularly for the purpose of establishing legal preference and priority in the movement of food, fuel and other vital commodities essential under present conditions.

The petition was presented to the commission by Alfred P. Thom, vice-chairman and counsel of the Association of Railway Executives, and R. H. Aishton, president of the American Railroad Association, at the request of the advisory committee of the executives' association. The advisory committee had held a meeting in New York the day before to discuss operating conditions and the work of the Commission on Car Service, whose organization it was decided to enlarge, and the appeal to the commission was decided upon at that time, some of the signatures to the petition being obtained by telegraphic authority.

Possibly the determination to call upon the commission was influenced to some extent by the likelihood that the commission would itself decide to make use of its authority and by a feeling that, as the relief could be given in no other way, valuable time would be gained by asking it to do so before conditions became any worse. The commission made no immediate announcement of a plan of action but made arrangements for a conference with railroad executives and operating officials to be held on Wednesday, May 19, and it issued the following public statement:

"With reference to the annexed petition, which has today been received and filed, the Interstate Commerce Commission is proceeding actively with steps toward the effective exercise of the powers and duties cast upon it in such emergencies, to afford such relief as may be possible in the present situation."

The Railroads' Petition

The Chicago, Burlington & Quincy Railroad Company, Chicago, Milwaukee & St. Paul Railway Company, Chicago & North Western Railway Company, Southern Pacific Company, Northern Pacific Railway Company, Pere Marquette Railway Company, St. Louis-San Francisco Railway Company, New York Central System, Boston & Maine Railroad Company, Pennsylvania System, Illinois Central Railroad Company, Colorado & Southern Railway Company, and Fort Worth & Denver City Railway Company, for themselves, and in behalf of such other railroad companies as may join in this petition, and generally in behalf of the railroads of the United States, represent and show to the commission that there is at the present time, and has been for some weeks past, an emergency because of shortage of equipment, congestion of traffic, and insufficiency of railroad labor, which has assumed such serious proportions as to justify and require the exercise by the commission of the emergency powers granted and imposed upon it by Section 402, paragraphs 15, 16 and 17 thereof of the transportation act, 1920, in order to afford the necessary public relief and enable the carriers of the country under the orders and direction of the commission to immediately adopt, and so long as the emergency continues, continue to apply the methods of transportation necessary for that purpose.

Petitioners further represent that although the railroads of the country are urgently in need of large numbers of additional freight cars and locomotives, there is no immediate opportunity of procuring the same in time to be available during the present emergency, and therefore relief in the movement of those commodities most essential at the present time, namely, food and foodstuffs, perishable products, livestock, coal, newsprint paper, etc., can only be afforded by the current daily use and movement in the most effective manner of the existing equipment. Under present conditions, it will require many months to provide the needed additions to equipment and power, and a much larger capital outlay than the carriers are now able to provide.

Petitioners further show that there is an enormous volume of traffic of all kinds awaiting movement; there still remains to be moved a considerable portion of the agricultural products of the year 1919, and the new crop of the present year will in certain sections of the country begin in the near future to be offered for shipment. There is general need in almost all sections of the country for the movement of coal, not only for current purposes, but for the accumulation of necessary stores and reserves for the coming winter, especially in movement to lake ports of the coal to be moved by water to upper lake ports, before the end of navigation.

Petitioners further show, that resulting from conditions developed during the war, there is, and has for some time past, been a general shortage of competent railroad labor, recently made more pronounced because of the unwarranted and illegal action of large bodies of certain classes of railroad labor who have suspended work, thereby adding to the difficulty of maintaining full operations of the railroads, and contributing to the growing public distress on account of the delay in the movement of the necessary products and raw materials of the commerce of the country.

Under these conditions, which promise to continue for some period of time, the public interest requires, and the carriers are entitled to ask, the exercise of the emergency powers granted to the commission by the transportation act, 1920, aforesaid, so that:

(1) Necessary food, fuel, and other vital commodities directly affecting the cost of living and the life and comfort of the people, may have preference and priority in movement;

(2) That empty equipment, particularly box, refrigerator, stock and coal cars needed to move these commodities may have like preference and priority in movement to those sections of the country where they are currently required for loading;

(3) That for these purposes, and under the orders and direction of the commission, the carriers may be authorized, so far as necessary, to postpone or delay the loading and movement of other less important commodities, including as and to the extent that may from time to time be necessary the reduction of existing passenger service, and generally to take such other action as the commission under the exercise of the powers aforesaid may find proper and necessary, to currently meet the conditions aforesaid;

(4) That to the extent the commission may find neces-

sary and may by order authorize, the carriers may be relieved from the operation of federal and state laws and orders recognized as ordinarily effective during normal transportation conditions and governing the service of the carriers in the usual and ordinary conduct of their public service, so that in adopting and carrying out the orders issued by this commission during the present emergency, the carriers may be protected against penalties and complaints which would otherwise accrue, and be enabled to lawfully adopt and currently apply the necessary emergency measures as the commission may order to relieve present conditions.

Petitioners and all carriers have, and currently maintain, records of car location, movement, orders for cars for shipment of commodities, and generally all data and information necessary for an understanding of the facts upon which this petition is presented, and tender the use of the same and such other aid and assistance as may be helpful to the commission in the framing and administration of such orders as from time to time it may issue in this matter.

WHEREFORE, petitioners in their own behalf, and in behalf of all carriers, joining herein, pray that this proceeding under the summary and expedited power contained in Section 402, paragraph 15 of the transportation act, 1920, be set down for immediate hearing and investigation, and without formal summons or notice, excepting as same may be publicly given to other public authorities, shippers and other carriers, and without further formal pleading or answer, and that thereafter, and from time to time as may be necessary, the commission enter its order or orders giving directions and requiring such preference or priority in transportation, embargoes and movement of traffic under permits, including equally the necessary empty cars required therefor, together with such just and reasonable directions as present emergency conditions may require with respect to car service without regard to the ownership as between carriers as in its opinion will best promote the movement of those commodities and the empty cars therefor most needed to relieve present conditions and generally such further orders and directions in the premises as may be required to enable the carriers to more promptly and effectively furnish the transportation necessary to serve the public, so long as these conditions continue.

The petition was signed by Hale Holden, president, Chicago, Burlington & Quincy; H. E. Byram, president, Chicago, Milwaukee & St. Paul; W. H. Finley, president, Chicago & North Western; J. Kruttschnitt, chairman of board, Southern Pacific; Howard Elliott, chairman, Northern Pacific; E. N. Brown, chairman, Pere Marquette; E. N. Brown, chairman, St. Louis-San Francisco; A. H. Smith, president, New York Central System; J. H. Hustis, president, Boston & Maine; W. W. Atterbury, vice-president, Pennsylvania; C. H. Markham, president, Illinois Central; Hale Holden, president, Colorado & Southern; Hale Holden, president, Fort Worth & Denver City; S. M. Felton, president, Chicago Great Western; E. J. Pearson, president, New York, New Haven & Hartford; C. L. Bardo, president, Central New England; W. H. Truesdale, president, Delaware, Lackawanna & Western; W. H. Bremner, president, Minneapolis & St. Louis; J. B. Tigrett, president, Gulf, Mobile & Northern; N. D. Maher, president, Norfolk & Western; J. L. Lancaster, president, Texas & Pacific; W. S. Palmer, president, Northwestern Pacific; J. M. Herbert, president, St. Louis Southwestern.

Thomas De Witt Cuyler, chairman of the Association of Railway Executives, authorized a statement in explanation of the action of the roads in part as follows:

"There exists today a menacing shortage of cars and transportation due to restricted building of equipment during the war; to the unusual degree of equipment requiring repair; to the wide dispersion of equipment during the period of federal control; to the heavy traffic in all kinds of commodities; and all of these elements greatly complicated and emphasized by the recent switchmen's strike. In the opinion of the railroad companies, the situation is such as to warrant and require emergency action similar to that taken when this country entered the war.

"Without the exercise by the Interstate Commerce Commission of its emergency powers, the railroad companies are themselves not able to afford the relief necessary because they are subject to general laws, federal and state, governing transportation, and cannot legally prefer traffic except under very limited conditions, nor discriminate between shippers, sections of the country, or commodities. The unauthorized switchmen's strike, added to the general scarcity of labor, reduced available operating forces so that all of the transportation needed, including the movement of empty cars, cannot now be supplied. As a result the food and fuel situation is assuming threatening proportions, increasing the cost of living and affecting the banking and credit conditions throughout the country in a manner requiring immediate relief."

The issuance of orders by the commission itself in the near future had been looked upon as a possibility for several days, following a change in its organization by which Commissioner C. B. Aitchison was placed in charge of car service matters in place of Commissioner H. C. Hall, who was placed in charge of the law division. E. E. Clark, who was recently elected chairman of the commission, was in charge of the law division. The commission had been keeping in close touch with the developments as to car shortage and congestion both by the flood of complaints received from shippers and through its Bureau of Service and by conferences with the officials of the Commission on Car Service and after Mr. Aitchison had been given direction of service matters about 125 of the commission's safety appliance inspectors were called upon to submit reports on transportation conditions. The commission had not yet built up the organization of its own Bureau of Service and had started out with a policy of not issuing orders on its own authority but of co-operating with the railroads' own organization as long as such a policy seemed sufficient.

Thus far the Commission on Car Service has been working on a temporary basis, with only a small organization as compared to that which it had in 1917, although plans for strengthening and enlarging it have been under consideration. The commission has been issuing relocation orders to various roads directing them to deliver a certain number of cars of a given type to other roads at specified junction points at the rate of so many a day, and it has been keeping in touch with the situation throughout the country for the purpose of making the necessary orders to take care of the most pressing requirements. It has also been devoting attention to the relocation of cars in accordance with ownership in so far as it could be done without undue empty movement, but particularly for the purpose of getting particular types of cars back into the territory where they were most needed. There have been large numbers of coal cars in the West which are owned and are particularly needed in the coal-loading territory in the East and large numbers of western box cars have been caught in the congestion in the east.

The congestion which existed at the time the roads were returned to their owners on March 1, resulting from severe winter weather, was being gradually overcome and a slight improvement was being made in the direction of reducing the car shortage when the "outlaw" switchmen's strikes began about April 1. While the strikes as such have been practically at an end for some time and a majority of the men have either returned to work or had their places filled by others, even a restoration of normal activity has been insufficient to make up for the accumulated loss of work and the accumulations of loaded cars resulting from the strikes have slowed up the movement since. According to railroad men who have been in Washington recently large numbers of the strikers

have left the railroad service to take other jobs, many of them, particularly in the larger cities and industrial centers, at considerably higher wages than those paid by the railroads for yard service.

Asked to Exercise Emergency Powers

Reports from individual railroads received by the Commission on Car Service and by the Interstate Commerce Commission indicate that the peak of the congestion was about April 24, since which time the situation has shown a gradual improvement. Figures showing the number of cars moved each day began to fall rapidly during the first part of April, beginning on April 5, while the figures showing cars on hand to move correspondingly increased. Since about April 15, however, the number of cars moved daily has increased until the latest reports show a return to the normal condition, or at least to the condition as it existed before the strike, while the number of cars on hand to move has been showing gradual decreases. In the case of many roads the number has been reduced to that of the period before the strike, although on many other roads handling the normal number of cars has not yet been sufficient to reduce the accumulation.

The Commission on Car Service has issued the following summary of general conditions as of May 13:

Accumulation Being Reduced

The accumulations of cars to be moved on April 2, according to reports, amounted to 93,019, as compared with a normal of perhaps 30,000 to 40,000. On April 24, after the strike had been in effect for nearly three weeks, the accumulation was 269,069 cars, but on May 8, the date of the latest report, it had been reduced to 201,392. In February, 1918, shortly after the government took over the railroads, the accumulations amounted to 206,000, and the lowest record of recent years was on May 30, 1919, when the total was only 20,000.

Box Cars.—Shortage of box cars in Central and Northwestern territory continues. Strike conditions have impeded the relocation of box cars to the territories in which shortages exist, to an extent that will provide effective relief. The situation is improving and it is expected a regular and continuous movement of empty box cars can be started and maintained within a short period. Empties in increased number are being moved out of the south and southeastern territory to Ohio, Indiana and the Northwest. Demands are increasing daily, and all roads should continue the suggestion made in the general summary April 16. Ventilated box car requirements are heavy in the southeastern section and increasing in the southwestern and California section, and situation is such special action should be taken by roads to see there is no undue delay to this equipment, and handled strictly in accordance with Circular CCS-20, withdrawing this equipment from general service.

Automobile Cars.—Demand continues heavy and in excess of the supply. Considerable equipment of this class has been delayed in movement due to labor disturbances, and special attention should be given the prompt movement in accordance with car service rules and special instructions.

Flat Cars.—Flat cars should be used only for loading commodities that cannot be accommodated with other types of cars. Give special attention to movement and repairs. This equipment should be handled strictly in accordance with car service rules and special instructions.

Stock Cars.—To adequately protect stock car requirements, which are particularly heavy in Texas and at market centers, it has been necessary to withdraw this class of equipment from general service in the territory formerly comprising the Eastern and Allegheny regions, and roads in the southwestern section. There should be no undue delay in forwarding this equipment to live stock loading territory with due regard to car service rules.

Refrigerator Cars.—While no serious shortage is reported from any district, the prospective movement is heavy, and with the unavoidable delays already encountered in the movement of empties, we are practically certain to face shortages, not only in California, but also in the Southeast. Heavy cantaloupe movement from Imperial Valley now starting and miscellaneous refrigerators ordered to California. Packing houses are short of private equipment, but we are not now able to give them much assistance from supply of railroad cars.

Open Cars.—The production of bituminous coal during the first half of May showing a slight improvement over the month of April reflects the extraordinary efforts which the railroads are making to provide a favorable car supply. Continuation of labor difficulties has very seriously affected the ability of all roads, particularly the lines east of the Mississippi River. The movement of lake coal and ore started with the formal opening of navigation on May 3, and it is of tremendous importance that open top equipment owned by the lines serving Lake Erie ports be promptly returned to home rails. Circular CCS-9 was framed to accomplish this, and while some progress has been made, as indicated by percentage of increase in number of home cars on home rails of the Lake lines involved, there should be no relaxing in our efforts if the unusually heavy program planned for this year is to be successfully carried out. Mill gondola situation continues serious and it is urgently necessary that this type of equipment be handled as expeditiously as possible in the direction of the steel mill districts. Miscellaneous commodities are being reasonably well protected in car supply. With the increase in road building activities there is a corresponding increased demand for cars to protect movement of sand, stone and gravel. Every consistent means should be taken to accord these commodities their share of transportation.

As a response to numerous queries as to what it proposed to do in regard to the petition presented by the railroads, the Interstate Commerce Commission on May 17 issued the following:

"For the purpose of developing accurately the situation as to car shortage and traffic congestion throughout the country, the Interstate Commerce Commission has, for several days past, been utilizing fully the services of about a hundred of its safety appliances, hours of service, and locomotive inspectors at the important terminals in the country.

Reports received by wire from these inspectors are taken up by the commission promptly with the carriers affected or with the American Railroad Association for attention. The commission is in close touch with the reports received by the Car Service Commission of the American Railroad Association. Today the commission requested by wire the co-operation of the respective state railway and public service commissions in developing the actual situation in each of the states.

"In the last few days complaints and requests for assistance have been received from shipping interests throughout the country, by letter, by telegraph, through members of Congress, and by personal appeal. These have been handled immediately with the carriers, and in many instances the inspectors of the commission have been employed upon the ground to help break the jam at some congested point.

"The commission today advised the Ore and Coal Exchange, with headquarters at Cleveland, Ohio, that there is a present necessity for co-operation between the carriers and shippers in handling coal and ore upon the railroads and lakes, along the lines followed in 1918, by means of the creation of an effective coal and ore pool, saying that the record shows that continuance of existing arrangements means far-reaching hardship and perhaps disaster, and suggesting that as an initial step the interested parties should

re-establish immediately a similar arrangement to that in effect in 1918.

"Many requests have been received for information as to whether the commission contemplates hearings upon the application filed by numerous important railroads last Saturday, asking the commission to exercise its emergency powers under the transportation act. The commission does not contemplate the holding of any hearings in the immediate future; but it expects, from time to time, and as the facts develop, to give such directions as seem warranted and necessary."

Without waiting for priority orders, the railroads, with the co-operation of the commission, have taken steps to give preference to the movement of empty box cars westward and coal cars eastward. This has the effect of neglecting certain shippers, who would like to use the coal cars and box cars for other commodities and in other directions, and the roads would not have felt like doing too much of it without the backing of the commission. The commission issued the following statement on Tuesday:

"The movement of empty box cars, suitable for transportation of grain, continues in large volume from New England and the Atlantic seaboard states to the grain-producing regions of the Central and Northwest. These cars are being moved in solid trainloads, under expedited orders, and their movement is watched continually to avoid any preventable delay in getting the equipment where it is most needed. Simultaneously there is a movement in the reverse direction of trainloads of empty open-top cars suitable for coal loading, from the Middle West to the coal-producing sections of the East and Southeast. This expedited movement will be continued until a more proper balance of these classes of equipment is obtained, and should result in considerable relief both by providing foodstuffs and fuel where needed and by easing the financial strain resulting from the long-continued inability to move these commodities.

"Measures are under way for an intensive local study of the congested areas in important terminals and gateways, where, owing to the continuance of extremely unfavorable labor conditions and shortage of man power, or for other causes, the free movement of traffic is obstructed. This will permit the exercise of the emergency powers of the commission as to local situations in appropriate ways.

"More than one hundred inspectors of the Interstate Commerce Commission are actively in the field at the important terminals. There has been a general response by the state railway and public service commissions to the request of the Interstate Commerce Commission for information as to the conditions in each state. The state commissions are tendering the services of their inspectors to co-operate with those of the Interstate Commission in the present emergency."

The situation was further discussed with the commission on Wednesday afternoon for the purpose of considering the necessary steps to be taken by a committee of executives headed by Hale Holden, president of the Burlington, and including C. H. Markham, president of the Illinois Central; W. W. Atterbury, vice-president of the Pennsylvania; A. H. Smith, president of the New York Central; C. R. Gray, president of the Union Pacific; Samuel Rea, president of the Pennsylvania, and Alfred P. Thom, counsel for the Association of Railway Executives. There were present also R. H. Aishton, president of the American Railway Association; W. C. Kendall, chairman of the Commission on Car Service; C. M. Sheaffer, general superintendent of transportation of the Pennsylvania, and W. L. Barnes, general superintendent of transportation of the Chicago, Burlington & Quincy. The railroad men made some recommendations and after the meeting the commission made the following announcement:

"This afternoon the committee of railroad executives and R. H. Aishton, president of the American Railroad Association, met informally with the Interstate Commerce Commission as by arrangement, for the purpose of submitting their views as to the manner in which the emergency power of the commission should be exercised under the transportation act with respect to the relocation and disposition of cars. Hale Holden, president of the Chicago, Burlington & Quincy, presented the views of the executives to the commission. The executives contemplate, that in order to relieve the existing situation it is necessary that 20,000 box cars shall be relocated from eastern territory to the lines west of Chicago within a period of 30 days and that in the same period of time 30,000 open top cars shall be transferred from the middle west to eastern territory.

"It is suggested that it will be necessary to give preferred movement to these diversions of equipment, which are in the meantime being carried forward as rapidly as possible. The details of the orders will be considered by the commission and a decision reached as speedily as the complexity of the question permits.

"In the morning the Michigan congressional delegation representatives of the public utilities of Michigan and numerous public officials had a conference with Commissioner Aitchison and the Director of Service with respect to the pressing need of the public utilities of Michigan for coal, and asked that in any orders issued by the Commission respecting coal movement, public utilities should be given preferential consideration. They pointed out that there is in that section a serious mis-use of open top equipment and that in consequence of the inability of the lines south of the Ohio river to secure equipment from the rail lines serving them and their northern connections, gas plants and electric plants in Michigan were operating daily from hand to mouth, and that a number of them had been closed for periods from 2 to 8 days.

"The American Canners' Association has presented a request for priority for its shipments of box cars in the Pittsburgh, McKeesport and Youngstown district to load cars for growing crops and the canning of other fruit products.

"In connection with the movement of open top equipment back to the coal mines, considerable opposition has developed locally in certain districts because such movement interferes with the manufacture of cement and with the carrying on of road building plans."

While many newspapers have discussed the latest developments as pointing to a control over railroad operations by the Interstate Commerce Commission similar to that exercised by the Railroad Administration the indications are that the commission intends to proceed jointly with the railroads and to bring to bear all the co-operation possible on both sides, supporting the roads wherever possible in such action as is agreed upon as being necessary and advisable and exercising its independent judgment in such instances as it may fail to agree with the ideas of the railroads. To this end the commission is engaged in strengthening its own organization and is understood to be making arrangements for obtaining the services of several practical railroad men for work with its Bureau of Service, of which F. G. Robbins is director. Also the Commission on Car Service is to be enlarged to seven members, the number it had in 1917, representing various sections of the country, and arrangements are being made for locating district organizations of the commission in various parts of the country at the most important terminal centers and gateways.

The commission now consists of W. C. Kendall, W. J. McGarry and A. G. Gutheim. This week C. B. Phelps, formerly superintendent of transportation of the Louisville & Nashville, has been appointed an additional member, representing the Southeast, and additional members are to be appointed for the Southwest, Central West and Northwest.

W. L. Barnes, who recently resigned from the commission to return to the Burlington, has been appointed assistant to President Aishton of the American Railroad Association, in charge of car service matters with office at Washington. A

Boston office of the commission has been established, in charge of F. E. Dewey as district representative, a Chicago office was recently established with M. B. Casey as district representative and manager of the refrigerator department, and three district representatives are to be appointed.

Transportation Affecting Credit Situation

The effect of the transportation shortage on the credit situation, because of the tying up of credits in goods which ought to be moved but have been held back, was one of the principal topics of discussion at a conference of bankers from various parts of the country with the Federal Reserve Board at Washington on Tuesday. A committee was appointed with E. W. Decker as chairman, which called on the Interstate Commerce Commission on Wednesday morning and presented a resolution urging, as one of the most important remedies for the existing situation, that the commission and the Shipping Board "give increased rates and adequate facilities such immediate effect as may be warranted under their authority." In addressing the commission the spokesman for the committee said:

"The whole country is suffering from inflation of prices, with the consequent inflation of credit. From the reports made by the members of this conference, representing every section of the country, it is obvious that great sums are tied up in products which if marketed would relieve necessity, tend to reduce the price level and relieve the strain on credit.

"This congestion of freight is found in practically all of the large railroad centers and shipping ports. It arises chiefly from inadequate transportation facilities available at this time, and is seriously crippling business. We are informed that the per ton mile of freight increased in three years—1916, 1917 and 1918—47½ per cent, while the freight cars in service during the same period increased 1.9 per cent.

"A striking situation exists which can only be relieved through the upbuilding of the credit of the railroads. This must come through adequate and prompt increase in freight rates. Any delay means the paying of a greater cost, directly and indirectly, and places a burden on the credit system which in the approaching time for seasonable expansion may cause abnormal strain. Even under the load of war inflation, high-price level and extravagances the bank reserves would probably be sufficient if quick transportation would be assured during the time of the greatest strain."

A policy of general curtailment of bank credits except for the more essential purposes was also strongly recommended to the bankers by Governor Harding of the reserve board, who urged individual action by the banks to "check further expansion and to bring about a normal and healthy liquidation without curtailment of any essential industry."

The Michigan Congressional delegation also called on the Interstate Commerce Commission on Wednesday to ask that 500 carloads of coal per day be sent into the state for the relief of public utilities.

The transportation situation also was the principal topic of discussion at a conference of grain shippers, railroad officers, bankers and others called by Julius H. Barnes of the United States Grain Corporation on Wednesday to consider the steps necessary to be taken to prevent chaotic conditions when the grain corporation dissolves on June 1. C. B. Aitchison of the Interstate Commerce Commission told the meeting that the switchmen's strike is responsible for about 60 per cent of the transportation difficulty and that the labor situation on the railroads must be solved in some way. He said that the Interstate Commerce Commission is fully cognizant of the seriousness of the situation and that every effort will be made to give as much relief as possible. The principal requirement is that coal and grain will be moved and every possible effort is being made in that direction, but he expressed the opinion that it would not be at all advisable for the commission to issue blanket priority orders or to attempt to make up any list of non-essentials and indicated that it would be necessary to deal with individual situations, although it would doubtless be necessary to give priority to certain shipments. Meanwhile, he said, the conditions demand the utmost co-operation of the public.

The railroads were represented by Hale Holden, president of the Chicago, Burlington & Quincy; Samuel Rea, president of the Pennsylvania; and A. H. Smith, president of the New York Central. Mr. Holden said that the railroads are doing the best they can with the available facilities and pointed out that the railroads had been turned back to their owners on March 1 in an inadequate condition. He said that the appeal to the Interstate Commerce Commission did not indicate any relaxation of effort on the part of the railroads, but rather represented a call for all the help possible in meeting a difficult situation because the commission possessed powers which the railroads could not exercise on their own account. The representatives of the grain interests and of the bankers also emphasized the need for cars, not only for the handling of new crops, but to get the remainder of last year's crops to market and thus release credits.

The Senate on May 14 adopted a resolution introduced by Senator Reed of Missouri calling on the Interstate Commerce Commission to furnish the Senate at the earliest possible date information showing the causes for the present freight car congestion in the principal cities of the United States and what efforts have been, are being, or should be taken to relieve the condition and move freight promptly.

Railroad Unions also View Wage Delay with Alarm

OFFICERS of the 17 railroad unions on their arrival at Chicago on May 17 for attendance at the resumption of hearings before the United States Railroad Labor board on the question of general wage scale advances for the 2,000,000 railway employees, issued a statement expressing apprehension as to the effect of further delay in meeting the workers' request for increased wages.

"The country is face to face with the menace of a breakdown in transportation service," the statement declared. "Already the efficiency and safety of the service have been seriously impaired by the action of thousands of employees who voluntarily have quit to find higher wages elsewhere. The car shortage now threatening to stop the wheels of all industry in the country is one of the first effects traceable to the failure to provide the railway workers with a living wage. Moreover, railroad travel is becoming hazardous by reason of the reduction to almost one-third in the number of track walkers whose duty it is to guard the roads against causes of wrecks and other accidents.

"As the chosen representatives of the two million railroad workers we have every confidence that the decision of the Railroad Labor Board in the wage question with which it is now engaged will be equitable and just and arrived at with all possible speed. But, acutely conscious of the gravity of the situation in the transportation industry, we feel it our duty to acquaint the country with the essential facts.

"We have presented our case for a living wage for the workers. Expert opinion, predicated on incontrovertible facts, indicates that the lowest figure at which a family of five can be maintained in health and reasonable comfort is $2,500 a year. We have also submitted evidence proving that only 2½ per cent of the whole army of railroad workers are receiving a living wage today. This small percentage is composed almost wholly of division officials, general mechanical foremen and other supervisory groups. On the basis of what is accepted as the most accurate estimate of a bare subsistence level of earnings, which is $1,700 per year, 83 per cent of

the country's railway workers are attempting to maintain their families below a bare subsistence level. More than 600,000 railway employees do not earn in a normal working year $1,075, below which figure nearly three-quarters of the families are undernourished and seven-eighths are underclad.

"Here is the entire transportation system of the country, not with its unskilled alone below the level of subsistence, but with seven-eighths of its entire working force below this level, and a large proportion actually below the starvation wage. Whole classes—the largest classes in the railway service—must face the prospect of seeing their families without the barest necessities of physical well-being, while only a small proportion can look forward after nearly a lifetime of service to attaining an approximation to normal comforts.

"The average yearly wage paid to the entire number of railroad workers in the United States today is $1,280.30 for a normal working year of 306 eight-hour days, allowing nothing for sickness, emergency or irregularity of employment. Compared with $1,700, the lowest subsistence wage budget worthy of consideration, and $2,533, the Bureau of Labor Statistics' minimum comfort budget for Washington, D. C., this average alone should be sufficient to compel immediate relief for the railroad workers of the country.

"Under such conditions as we have here outlined it should not be surprising that officials of the various organizations of railway employees should find it difficult to maintain 100 per cent discipline within their ranks. Neither should it be strange that men are leaving the railway service and that other men cast respect for wage agreements to the winds in an effort to keep their families above the level of pauperism. Unrest in the ranks is naturally increasing, and increasing at an alarming rate.

"So great is the issue that there can be no question as to the practicability of paying rates which will make possible for 2,000,000 families a standard of health and reasonable comfort. A living wage is the only practicable answer to the present industrial situation. It is the only possible answer in terms of citizenship. Any other answer will only postpone the settlement until conditions render a real solution more difficult."

The Freight Situation at New York

THE GENERAL freight traffic situation is dealt with in a previous article in the shape of reports from Washington. In New York City and vicinity no marked improvement in freight movement can be reported, though there is the negative encouragement to be had from the negative fact that the numerous predictions of impending suspension of factories or shortage of food have not as yet come true in any general sense. The railroad situation, moreover, is not now the main issue at New York; the congestion at numerous docks, due to the longshoremen's strike, and the truckmen's refusal to move freight which has been handled by non-union men are the more prominent elements of trouble. The merchants' committee, which is preparing to run non-union or "open shop" automobile trucks to move wholesalers' freight, has not yet got its enterprise started.

The newspapers of New York print reports, evidently authentic, of large factories being closed, but with names omitted. The exportation of large quantities of freight through Philadelphia by firms who usually and preferably would send their goods through New York has started a great deal of discussion in the metropolis. A New York paper of May 18, says:

"Nearly all of the New York steamship companies are using other ports for general cargo vessels. Philadelphia, Baltimore, Portland, Newport News and Boston are among the cities to which the freight is being diverted. Eighty per cent of the export freight consigned through New York forwarding houses is now being shipped from Philadelphia and Baltimore, it is estimated. Only one ship has left New York for the Far East in the last three weeks and it carried only half a cargo. Two boats now being loaded at Philadelphia will carry cargoes of general merchandise to Mediterranean ports. One shipping man declares that conditions in the Port of New York have been abnormal for several years and seem to be growing worse. Philadelphia and Baltimore are likely to be used permanently. The pier facilities there are better, and there is a disposition on the part of both the railroads and the city authorities to do everything possible for the accommodation of the shipping companies."

A Philadelphia paper of May 15 reported 1,653 cars of export goods as going through that city in two days, each shipment of which normally would have gone through New York. Seventeen steamships had been ordered from New York to Philadelphia to take freight of this kind. Most of the shipments consisted of steel, oil or flour. Of the 1,653 cars, 1,159 were brought in by the Pennsylvania Railroad, 449 by the Philadelphia & Reading, and 45 by the Baltimore & Ohio.

A train of five automobile trucks left New York on May 14 for Chicago. On that day it was said that the number of cars delayed on side tracks of the Pennsylvania Railroad between New York and Pittsburgh was 14,000. When the strike was at its worst the number of cars thus left was 22,000.

Shippers who have used automobile trucks for urgent shipments say that they cost $1.50 a mile; at this rate the five trucks above mentioned earned, in going from New York to Chicago and back, a total of $15,000.

A wagon load of machinery, about three tons, for South Carolina, had to stand in line more than two days, waiting to get into a freight station in Brooklyn, N. Y.—and this in a case where, before starting out, the shipper had received assurances from the railroad that freight for South Carolina could be received.

At Buffalo, N. Y., the shortage of coal continues, and the people are exercised over the fact that 150 cars of soft coal pass through the city almost every day bound for points in Canada.

At Haverhill, Mass., large quantities of shoes are left on the makers' hands because of delays in freight transportation.

Local strikes of yard men were reported last week on the New York Central at the freight yards at Sixtieth street, New York city, and on the New York, New Haven & Hartford, at Hartford, Conn., both of which appear to have been fully settled after a few days.

The New York, New Haven & Hartford has published some of its daily statements of freight car movement, showing an aggregate volume of traffic nearly the same as that in May last year. The Lehigh Valley reports for sixteen days of May about the same freight movement as in 1919. Shipments of anthracite over that road were twenty per cent in excess of the movement last year. Other Eastern roads report some encouraging features, similar to the foregoing, but not with so much definiteness.

More than 1,000 carloads of freight for export to India, New Zealand and Australia are are being held at Newport News, Va., because of a lack of ships for loading it, according to a statement printed in Richmond and credited to officers of the Chesapeake & Ohio. Tobacco, iron and steel, steel rails, automobiles, trucks, iron pipe, agricultural implements, wire, tin plate and glass comprise the bulk of the shipments. There are 171 carloads of automobiles, 131 cars of rails, 19 cars of automobile trucks and 20 cars of iron pipe bound for India. For Australia and New Zealand there are 237 cars loaded with automobiles, 213 of iron and steel, 97 of tobacco, 66 of agricultural implements and 53 of wire.

Hearings Before the Railroad Labor Board

Presentation of Evidence on Behalf of the Carriers Occupies Wage Tribunal at Chicago Sessions

ADMITTING FRANKLY that wages ought to be granted to many railroad workers to enable them to meet the high cost of living, the Conference Committee of Managers of the Association of Railway Executives began the presentation of the railroads' views on the petitions of the members of the various railway brotherhoods for increased compensation before the Railroad Labor Board at Chicago on May 17. The testimony backing the petitions of the railroad labor organizations was taken and completed by the board at its hearings held in Washington. The board then adjourned to its permanent headquarters at Chicago, and it is estimated that the replies on behalf of the railroad companies to the testimony given by the labor leaders at Washington will occupy about two weeks. The board's decision on the petitions should therefore be rendered early in June.

The first session of the board in its new headquarters was held on Monday morning, May 17, and opened with the presentation of a general statement regarding the whole question of proposed wage increase.

E. T. Whiter, as chairman of the Conference Committee of Managers, in opening the railroad presentation of the case, stated that the demands by the 2,000,000 employees aggregated more than a billion dollars a year on top of a $1,000,000,000 wage advance in the past two years and a $300,000,000 advance in the two years prior to the taking over of the roads by the government, as is shown in the Lane Commission Report. Some part of the new demands, he said, the board would probably find justified by the rise in the cost of living.

Mr. Whiter's Testimony

"We are not here," said Mr. Whiter, "as the *opponents* of the representatives of the railroad employees who are before you seeking increases in wages; we are not here to argue that *all* of their requests should be denied; we are not here to obstruct or to delay a speedy hearing or a fair and prompt disposition of the requests presented. We are here in good faith to assist your board to grapple understandingly with the vast and complex problem that has been presented to you for your consideration and decision.

"We appreciate fully that the increases received by *some* employees in the last five years have not been commensurate with the increases in the cost of living and that due consideration to this fact must be given by the board in determining which of these employees are fairly entitled to increases to enable them better to meet the burdens resulting from the increased cost of living.

"We appreciate also that there are other employees who are receiving rates which cannot be considered at all low in an absolute sense, yet which do not compare favorably in some localities with wages paid similar occupations in outside industries; and we further appreciate that the discrepancies are such that the railroads cannot under present conditions in such localities hold these employees for their very necessary work unless some increases are given. However, in many such cases the outside wages are paid for classes of service which have no counterparts in the railroad employment and which are made possible by the product of the industries and the prices they are able to command.

"We cannot, of course, hope to compete with outside rates, cent for cent per hour, nor should this be considered necessary. Consideration must be given to the greater regularity and continuity of employment in railroad service, to the greater stability of railroad rates of wages when once established and to other attractive features of railroad employment which in the past have induced men to prefer to continue in railroad employment even when outside employment offered a somewhat higher rate per hour.

"The Transportation Act directs that your board shall establish rates of wages 'which in the opinion of the board are just and reasonable.' We are fully in accord with the principle thus laid down in the law, believing that efficient or satisfactory service cannot be expected for wages that are not 'just and reasonable.' We desire to see the transportation work of the country carried on by employees who have no just cause for dissatisfaction over their wage rates, and we are not, therefore, before you to urge that your board put a narrow or illiberal construction upon the words 'just and reasonable wage' used in the law. We believe equally that in return for a fair wage every employee or organization of employees should feel obligated to give efficient and ungrudging service. We are opposed, therefore, to the granting or perpetuation of rules which result in preventing the railroads—and through them the public—from receiving a fair return in service for payment made. We are opposed equally to the granting or perpetuation of so-called punitive rules which, while usually asked for on the basis that they are to protect against hardships or abuse, yet in their practical application, in which no exceptions are allowed, are converted into rules which regularly serve to increase earnings of employees."

Arrangements Should Be Made for Decreases

The great increase in the cost of living, Mr. Whiter said, was an evident fact, and wage adjustments must take this factor into account. But he pointed out that the peak in the cost of living had probably been reached and that the board must consider the situation which would be brought about when the cost of living declined. On this subject he said:

"With the forces now at work to bring about a reduction in the high living cost, with the now thoroughly aroused public sentiment, with the organized movement to curtail inflation, it is next to impossible to believe that the peak in the increase in cost of living has not been reached; and a procedure that would fix railroad wages permanently on the basis of the present living cost could hardly be defended. And unless some automatic principle is embodied in the award of your board that will operate to readjust basic rates as living costs go back toward the pre-war basis, or unless something is incorporated that will provide for a review of the award after some specified period, any wage rates that may now be fixed by your board would be practically permanent rates.

"It is not at all intended here to say that any wage rates that your board might award to meet the increased cost of living should be taken away again as fast as, and in the very same percentage as, the cost of living comes down. This would be, in effect, to decree that railroad employees should remain in the same comparative situation they were in before your award. We are not asking or suggesting this; but if, as costs of living go down toward the pre-war basis, a less than proportionate decrease in basic wages were provided for, the employees would be better and better off, as compared with pre-war conditions, in spite of such reductions."

Wage Advances Already Made

Wage advances made by the Railroad Administration during the two years of federal control, as shown by

reports issued by the director general, Mr. Whiter gave as follows:

To all employees, January 1, 1916	$360,000,000
To shopmen, January 1, 1918	209,000,000
To maintenance of way employees and clerks, September 1, 1918	190,000,000
To agents and telegraphers, October 1, 1918	25,000,000
To dining and sleeping car employees, January 1, 1919	8,000,000
To enginemen and trainmen, January 1, 1919	60,000,000
To shopmen, May 1, 1919	50,000,000
To enginemen and trainmen (time and one-half in road freight service), December 1, 1919	38,000,000
To maintenance of way employees (time and one-half for overtime), December 16, 1919; and the same for clerks, January 1, 1920	25,000,000

These advances, totaling $965,000,000, Mr. Whiter said, did not include wages charged to capital account, which would bring the total government wage advance to $1,071,000,000 a year.

The new Transportation Act, Mr. Whiter pointed out, provides that any substantial increase in the railroad labor cost must result in increased rates to the public for railroad service. For every $100,000,000 added to the payroll about 3 per cent must be added to freight rates, he said.

Wage Increases Expected

A summary of the estimated wage increases based on the pending demands was filed by Mr. Whiter as follows:

Class of employees	1919 payroll	Increases asked: Amount	Increases asked: Per cent
Clerks	$415,163,018	$175,098,406	42.17
Maintenance of way men	634,627,732	421,357,046	66.4
Shop	721,468,190	162,734,357	25.3
Telegraphers	89,957,985	43,415,145	48.2
Engine and train	672,489,869	276,872,123	41.2
Totals	$2,533,706,794	$1,079,477,077	42.6
Marine employees	.....	681,760	
		$1,080,158,837	

This does not include employees not involved in the demands, whose salaries and wages amount to about $211,000,000 a year, the total payroll for 1919 being $2,744,000,000.

Growth of the American Payroll

Mr. Whiter, in addition, gave these statistics of the growth of the American railroad payroll during and following the war:

Year	Payroll	Percentage to gross earnings	Number of Employes
1915	$1,134,665,000	39.5	1,366,316
1916	1,468,576,000	40.8	1,650,000
1917	1,730,057,000	43.3	1,703,748
1918	2,581,584,000	53.3	1,848,774
1919	2,744,000,000	53.6	1,977,616

Replies in detail to articles incorporated in demands made to Railroad Labor Board by representatives of transportation brotherhoods were continued Wednesday by E. T. Whiter. All testimony at this session dealt with those employed in road freight service. The question of rates to be paid for service which involves heavy grades was first considered. Regarding service and its pay, Mr. Whiter said in part: "Since adoption and installation of automatic air brake, the character of work required is completely changed and at the present time government requirements compel the application of power brakes sufficient to control the train on all grades. When this case was submitted to the Board of Railway Wages and Working Conditions last July, testimony by representatives of trainmen would indicate that living conditions in mountain territory today are as good and in some instances better than in other sections of the country. Therefore, no necessity exists for the present differentials in that territory, and certainly no reason for the extensions proposed. The adoption of the proposed rule would cause mountain rates to be established and differentials applied to a very large percentage of divisions of railroads in United States. It is understanding of the application of this article, as explained by representative of trainmen that where crew operates over gradient of one and eight-tenths per cent, no matter how short, that higher rate would govern for entire trip. For example: Employees working over short gradients on main lines, branch lines, approaches to bridges, elevated coal shed tracks, etc., that in no way affect speed of train, hazard or duties of trainmen would under proposed rules be paid the higher rate for the entire trip. Discussion of guarantees and held away from home terminal pay occupied a large part of today's session. Mr. Whiter, in case of guarantees, advocated the continuance of present provisions on the ground that to change the basis would; one, restrict the use of assigned crews on holidays or layover days; two, make it necessary to pay either assigned or unassigned crews for service not performed; three, increase payments held under way from home terminal rule; four, increased deadhead payments. In the case of held away from home terminal rule Mr. Whiter cited, the rulings of Walker D. Hines, Director General of United States Railroad Administration to effect that punitive overtime should not be paid because of detention away from home terminals. During the day the board issued a statement to the effect that it cannot and will not undertake to hear any disputes or controversies, except those which it is authorized by law to hear and cannot and will not hear applications of parties who are acting in disregard of law and who are not in compliance with law and the requirements of the board. It further states that the board will not allow hearing of proposed cases to be disturbed or delayed by any attempt to get other cases before it.

"Let no man be blind to the fact that a crisis in the transportation industry is at hand," said Timothy Shea, assistant president of the Brotherhood of Locomotive Firemen and Enginemen, in a brief filed with the Railroad Labor Board as a supplement to his previous oral testimony. "Six weeks ago we achieved the almost impossible feat of persuading men to return or to continue at work without securing for them any immediate relief and with nothing but promises as to the future, and now we have every evidence that these men are concluding that they have been fooled again.

"One great trouble with the American people is that they never believe that anything disagreeable is going to happen until it has actually happened. They wouldn't believe we would get into the world war until we were in it up to our ears, and more recently they refused to believe that there would be a steel strike or a coal strike until those industrial disasters were upon us. Now apparently they refuse to believe that the railroad situation is absolutely critical. The steel strike cost the country half a billion dollars at a conservative estimate and the coal strike half as much more. Both could have been averted. The lesson in the present situation is obvious.

"There is not even an implied threat in calling attention to another impending industrial catastrophe. It is a simple statement of fact. The railroad workers must have relief, and they must be given relief at once.

"There is another phase of the situation to which attention should be called. Notice has already been served on the public that whatever railroad rate increase may be necessitated by increases in wages to railroad workers will be multiplied four or five times by the profiteers and added to the already intolerable burden of the cost of living. The public is told that it is helpless to prevent this. If that is true it is a sad commentary on our political institutions, for it means that this is a government for, of and by an organized plunderbund.

"In this connection the public should understand that if it were not for the profiteers railroad workers could be given a square deal and a living wage without any increase in railroad rates. Next to wage earners and salaried people the railroads are the greatest victims of the profiteers. Railway equipment corporations, the steel trust, the coal barons and the petroleum pirates have grown fat on the excessive and unjustifiable profits they have exacted from the railroads, and

unless some means is found to curb their greed they will gobble up the greater part of the billions which the railroads must spend for new equipment, betterments and materials of all kinds during the next few years. The Railroad Labor Board may not have the authority to deal with this phase of the railroad problem, but there must be some governmental agency that has the necessary power and the courage to exercise it."

In closing the case for his organization, Mr. Shea said that in a comparison of earnings for eight hours of labor locomotive firemen rank seventy-seventh in a list of the various occupations and industries for which authoritative data are available. Only nine occupations are paid less than the firemen, he said.

Executives Make Recommendations for Use of Loan Fund

THE SPECIAL COMMITTEE of the Association of Railway Executives, which has been considering the method of using the $300,000,000 loaning fund provided by Section 210 of the transportation act, and has been prosecuting inquiries with regard to the needs of the carriers, has submitted a report which was transmitted to the Interstate Commerce Commission on May 12 by Thomas De Witt Cuyler, chairman of the association.

The committee, of which E. N. Brown is chairman, has received replies from 64 railways with regard to equipment, and from 55 railways with regard to additions and betterments, which will promote the movement of cars. It is expected that additional replies will come in, and these will be forwarded with an additional report.

In view of the desirability of putting a portion of this fund at work immediately, and of securing the placing of contracts for the construction of a portion of the needed equipment without further delay, the committee concurs in recommending:

1. That the Interstate Commerce Commission set aside immediately $125,000,000 to aid in the acquisition of equipment.

2. That the commission offer to each company having indicated a desire to purchase equipment, its percentage of the $125,000,000, being that percentage which the standard return of the company bears to the total standard return of all the railroads.

3. That if there be a balance left by the failure of certain companies to accept their percentages of the above sum, this balance be distributed to companies purchasing equipment, on the same basis as indicated in paragraph 2.

4. That the commission set aside $40,000,000 for claims and judgments against the Railroad Administration.

5. That the commission set aside $12,000,000 for meeting the requirements of the short lines.

6. Pending a determination as to whether or not maturities can be taken care of from this fund, this committee suggests that $50,000,000 be temporarily set aside for this purpose if the decision is favorable. If not, that this amount be used later on either as an increase in the amount to be used for equipment purchase, or an increase in the amount available for additions and betterments, or both.

7. That the commission proceed on the assumption that the balance of the fund for the time being, namely approximately $73,000,000, is available for additions and betterments of such character as will promote the movement of cars.

8. That within the limits covered by recommendations 1, 2, 7 and 11, the Interstate Commerce Commission proceed to make loans not exceeding the limits indicated by the paragraphs above mentioned.

9. That every effort be made, and the co-operation of the Interstate Commerce Commission be requested, to secure the amendment of the transportation act so as to make loans from the fund provided by Section 210 repayable in 15 instead of 5 years. The committee believes that the present five-year limitation has caused many companies to withhold applications for loans and orders for equipment, and is convinced that if the term were extended to 15 years, the amount of equipment for which the companies would request loans would be far in excess of the funds available.

10. That in exacting security from the weaker companies, the Interstate Commerce Commission and the Secretary of the Treasury be urged to pursue a liberal policy.

11. That in case of any extension of time or more favorable modification of the terms and conditions connected with loans from the fund provided by Section 210, the companies now making applications and receiving loans shall receive the benefit of any such extension or favorable modification.

12. In recapitulation, that for purposes of immediate administration the fund be considered as apportioned temporarily as follows:

(a) Temporary reserve for claims and judgments	$40,000,000
(b) Appropriation for Short Line railroads	12,000,000
(c) Temporary reserve for maturities	50,000,000
(d) Appropriation to aid in acquisition of equipment	125,000,000
(e) Appropriation for additions and betterments which will promote the movement of cars	73,000,000
Total	$300,000,000

If the recommendations made above be accepted, the committee says the Interstate Commerce Commission can proceed immediately to put approximately two-thirds of the loaning fund at work to enable the companies "properly to serve the public during the transition period immediately following the termination of federal control." In view of the importance of prompt action, the necessity and desirability of which is generally appreciated, the committee earnestly urges that the above recommendations be carried out without delay.

Financial Relief for Carriers Proposed

WASHINGTON, D. C.

FUNDS WHICH MIGHT BE USED for the purchase of additional cars and locomotives would be provided by requiring the Railroad Administration to pay to the railroads sums which it owes them on account of rental for the use of their properties during the period of federal control, instead of by making increased loans to the carriers, if Congress passes the amendment to the transportation act introduced by Senator Cummins on May 13, with the approval of the committee on interstate commerce.

Although the suggestion of an additional appropriation to assist the railroads in acquiring new equipment failed to meet the approval of the committee, practically the same result would be accomplished in another way by the amendment. In addition to increasing from 5 to 15 years the period within which loans from the $300,000,000 revolving fund already provided must be repaid to the government, the proposed amendment also provides that the entire amount of the indebtedness of the railroads to the government for additions and betterments made during federal control may be funded for a period of 10 years. Under the terms of the law as it was passed Director General Hines had proposed to require the companies to pay off about $495,000,000 of the total of $765,000,000 of additions and betterments by deducting that amount from the rental and other sums owed by the government to the railroads. This would leave only $270,000,000 to be funded for 10 years, in addition to $368,000,000 which has already been funded by equipment trusts payable in 15 annual instalments.

Senator Cummins' amendment allows deductions to be made from the rental due the companies only as an offset

against their other indebtedness to the government, the principal items of which are $144,422,526, which was to be evidenced by one-year notes and $44,433,664 of long term notes. The result, therefore, would be to give the railroads about $300,000,000 in cash. The railroads had strongly urged, before the passage of the act, that any deductions from their rental should be applied first to that portion of their indebtedness to be evidenced by one-year notes, instead of against the class of expenditures which under normal conditions would have been financed by long-term securities, and the Senate had adopted this view of the matter, but as the law was passed the matter was left in the discretion of the President, which means that of the Railroad Administration as his agent.

At the recent hearings before the Senate committee, held to discuss ways and means of financing new equipment, after shippers had urged the need of more cars, some of the railroad executives complained that the Railroad Administration had taken the attitude of a collection agency in trying to withhold as much as possible of the current rental to apply on the capital expenditures. The amendment was proposed because of the representations made at the hearing both by the executives and by the bankers, as to the necessity of doing something to help the railroads to finance themselves. Its passage, therefore, would increase the amount of cash which the railroads may collect from the Railroad Administration and give some of them a surplus which may be used to finance equipment, but it would hasten the time when the Railroad Administration would have to ask for more money.

As changed by Senator Cummins' amendment, paragraph (a) of Section 207 of the act would provide that the amount of the indebtedness of the United States to a carrier arising out of federal control may be set off against the amount of indebtedness of such carrier incurred otherwise than for additions and betterments, so far as deemed wise by the President, but only to the extent permitted by any contract between such carrier and the United States in respect to the matters of federal control. The law provided for a set-off against "either or both" classes of indebtedness.

Section 207 (b) would also be changed to read: "The indebtedness of the carrier to the United States incurred for additions and betterments made during federal control, properly chargeable to capital account, shall be funded for a period of 10 years. . . . The funding of such indebtedness shall be in such form and upon such terms as the President may prescribe for the reasonable assurance of payment of the same to the United States."

To meet the question raised by the Treasury Department as to whether loans from the $300,000,000 fund may be used for meeting maturities, Senator Cummins' amendment proposes to insert in Section 210, providing for the loan fund, the words "to meet its maturing indebtedness or to provide itself with equipment or other additions and betterments."

In order to make the fund available to weak roads which may not be able to furnish technical security, discretion as to the security to be given is placed in the Interstate Commerce Commission, whereas the law provides that it shall be prescribed by the Secretary of the Treasury.

The amendment was introduced and favorably reported by the committee as a rider to the sundry civil appropriation bill, which has already been passed by the House, and it was referred to the committee on appropriations. The provision for increasing the amount which may be funded is being opposed by Swager Sherley, director of the Division of Finance of the Railroad Administration.

Further consideration of the amendment was taken up by the Senate committee on Tuesday after Director General Hines had stated, in a letter to Senator Kellogg, that to adopt the provision for increasing the amount of railroad indebtedness to be funded would make it necessary for the Railroad Administration to ask for an additional appropriation of about $350,000,000 to meet the cash payments. A sub-committee, including Senators Kellogg, Townsend, and Underwood, was appointed to confer with members of the House as to the possibility of getting such an appropriation through.

Mr. Hines' European Mission

WALKER D. HINES, who has been nominated by the President as the arbitrator between the European powers concerned in various questions affecting navigation on the Danube, Rhine, Oder and Elbe and some other rivers of Central Europe, has received a note from M. Millerand, president of the Peace Conference, which follows in part:

"The government of the United States has informed the allied and associated powers that the President of the United States has nominated you as arbitrator on river shipping, in the execution of paragraph 6 of annex 3 part 8 and articles 339 and 357 of the Treaty of Versailles, as well as analogous articles in the other treaties of peace.

"The allied and associated powers congratulate themselves upon the choice of the American government. I have the honor in their name to thank you for kindly allowing them to profit by your experience, and assuring them your aid in the execution of so important provisions of the peace treaty, they trust that it will be possible for you to undertake shortly the task which you have been good enough to accept and execution of which cannot be delayed much longer, and they will be happy to facilitate in every way the accomplishment of your mission. Diplomatic privileges and immunity will be granted you, moreover, throughout the duration of your functions."

The work to be performed by Mr. Hines as arbitrator under the German, Austrian and Bulgarian treaties is of particular importance in connection with the Danube river, where the ownership of a very large number of steamers and other river property is in dispute with the result that navigation on the Danube has been seriously interfered with with consequent deterrent effects on economic conditions in the various countries for which the Danube is a principal means of communication. While the work affecting navigation on the Rhine, Oder and Elbe and some other rivers of Central Europe is also important, it is anticipated that the conditions on the Danube are particularly pressing.

As to the vessels in dispute on the Danube, many of them fell into allied hands during the allied advance into territory to be occupied by the allies under terms of the armistice and were taken possession of after the enemy had agreed to an armistice. A few of them were turned over to the Allies by the enemy for supply of the armies of occupation under the terms of the Austrian armistice and Hungarian military convention. The balance was seized by allied forces in territory beyond that which was to be occupied under the original terms of the armistice. The questions of ownership are further complicated by the fact that some of the vessels in question belonged to enemy ports which have since become allied ports under the changed frontiers.

The German, Austrian and Bulgarian treaties contemplate that as between the European powers affected the arbitrator, Mr. Hines, shall settle the conditions as to the cession of all boats and movable appliances belonging to inland navigation which are necessary to be ceded for the purpose of reparation or restitution in kind, and shall also determine the amount of boats and other material to be ceded for the utilization of the rivers referred to by the allied and associated powers and shall distribute among such allied and associated powers the materials and boats so ceded. Various questions relating to the nationality of the boats on some of

these rivers and to the ownership of the boats and the amount of compensations to be paid to the owners will also be involved in the determination.

In connection with the final determination of the issues as to the situation on the Danube it probably will be necessary for a decision to be made as to the date of the cessation of hostilities on the Eastern front, the effect of the armistice of the third of November, 1918, and of the military convention of November 13 and the validity of captures made by Jugo-Slavs, Roumanians and French in October and November of 1918. The cession to allied and associated powers of material of all kinds needed for the exploitation and improvement of the rivers under changed frontiers is also involved.

The British, French, Italian, Belgian, Greek, Polish, Roumanian, Serb-Croat-Slovene and Czecho-Slovak governments as well as Germany, Austria and Bulgaria appear to be interested in questions which will be presented to the arbitrator for determination.

It is anticipated that Mr. Hines will have to establish main headquarters in Paris and branch headquarters in various places including, perhaps, Vienna, Budapest, Belgrade and Bucharest, and the work of the branch office will involve largely the actual investigation of facts, the assessment of the value of various river property, the examination of the condition of the boats and the investigation of legal points.

Mr. Hines has appointed Brice Clagett, who has been assistant to the director general of railroads, as his executive assistant, and Mr. Clagett has left for Paris to organize the force, Mr. Hines to follow early in June.

Members of the Railroad Administration staff on Saturday presented Mr. Hines with a watch, Max Thelen making the presentation speech.

Seasonal Coal Rates to Be Put Into Effect

Committee Reports the Frelinghuysen Bill with a Strong Argument for Its Passage

THE SENATE COMMITTEE ON INTERSTATE COMMERCE, having conducted extended hearings, has reported the Frelinghuysen seasonal coal-rate bill (S. 4278), with the recommendation that the bill be passed with amendments.

This bill incorporates amendments suggested by Chairman Clark of the Interstate Commerce Commission. It has the approval of the members of that commission. The bill S. 4087 proposed that rates on coal should be 15 per cent less than the tariff rate from April 1 to August 31 in each year, and 15 per cent above the tariff rate for the remainder of the year. The bill introduced at the request of the American Society of Mining and Metallurgical Engineers, S. 4278, adopted the principle and most of the phraseology of the original bill, but provided definite differentials, expressed in cents instead of in percentages, above and below the tariff rates, for the transportation of coal, and provided a graduated series of increases and decreases.

The committee believes that legislation of this character requiring lower freight rates on coal during the spring and summer months and higher freight rates during the fall and winter months will tend to encourage consumers to develop storage accommodations, to accept deliveries of coal in advance of their seasonal needs, and thus to keep the mines operating more constantly throughout the year. The report by Senator Frelinghuysen, chairman of the sub-committee that considered the bill, expresses the opinion that such legislation will bring about the following beneficial results:

"1. It will stabilize the price of coal. The capacity output of all the coal mines in the United States, assuming fairly constant operation, would far exceed the present consumption. The output of all these mines working as at present only intermittently during the spring and summer months and working to capacity during the fall and winter months is barely sufficient to supply the current needs and the greatly increased cold-weather demand for coal. During the winter the demand so nearly equals the currently available supply that scarcity prices prevail. In addition to this the actual cost of production per ton is unduly enhanced because the operator must during the time his mine is closed down or working intermittently keep together his organization and expend money for the upkeep and maintenance of the property, all of which must be added to the price of the coal which he mines and sells during the rush season. If the demand for coal were reasonably constant throughout the year, many of these costs based on holding plant, capital, and personnel idle for a large portion of the time would disappear, and the price of coal would more nearly represent only current costs of production plus a reasonable profit, leaving no opportunity for charging scarcity prices during the months when the greatest amount of coal is consumed.

"2. Such legislation will obviate very largely the pressing necessity for more coal cars. The present supply of coal cars, while totally insufficient to handle the fall and winter rush under existing conditions, would be fairly adequate to carry all the coal desired by consumers if this equipment could be kept moving with greater regularity throughout the year, as would be the case if the advantage of lower summer and spring freight rates could be held out to induce consumers to receive coal shipments in advance of their winter needs. Under the present system, thousands of coal cars ordinarily lie idle during the spring and summer, while the whole available supply of coal cars is entirely insufficient to handle the fall and winter emergency.

"3. Such legislation would remedy the present inadequacy of terminal facilities. The large amount of coal which must now be transported within a comparatively short time in each year tends to glut already overcrowded terminals. The increasing inability of existing terminal facilities to handle extraordinary seasonal demands without entailing serious delays and disproportionate terminal costs is one of the most glaring weaknesses in the present American railroad transportation system, according to the testimony of Chairman Clark of the Interstate Commerce Commission.

"4. Such a measure would promote regularity of employment in mines, and would thus settle most of the outstanding grievances of the miners. Increased compensation for miners, under the present regime, is demanded not so much as an actual wage for work performed, but rather as a pension for periods of enforced idlleness due to the seasonal demand for coal."

The subcommittee finds most of the objections untenable:

"1. No confusion, either for carriers or shipments, will result from changing the rate on coal monthly by specified amounts. The proposed legislation prescribes that the carriers shall file their tariff rates on coal in the same manner as at present, and instead of requiring them to alter these tariffs monthly, provides a series of automatic statutory dif-

ferentials below the tariff rate for one portion of the year, and above the tariff rate for the remainder of the year, with discretion in the Interstate Commerce Commission to change the amount of the differential where it finds it necessary.

"2. The revenues of the carriers would not be affected. A large amount of coal would still have to be mined and shipped in fall and winter to consumers who lacked the capital, credit, foresight, or storage accommodations to enable them to secure their supply during the warmer months. If the differentials in favor of the spring and summer months should prove an unnecessarily large inducement, so that too great a proportion of coal were shipped during this period, the Interstate Commerce Commission is authorized to change the differentials so as to balance the summer and winter shipments properly.

"3. The transportation of more coal in the spring and summer will not embarrass the railroads in handling other seasonal movements, e. g., crops. In some localities cars carrying grain are loaded only in one direction, returning empty to the point of origin because of lack of shipments moving in that direction. If coal could be encouraged to move at the same time, this wasteful practice of hauling empty cars might be at least partially eliminated. Operating conditions during the clear weather of the spring and summer months are much more favorable, so that railroads can better withstand heavy demands for transportation at that period of year than during the fall and winter months when coal has heretofore moved in greatest volume. The cost to the railroads of transporting coal is also much less in warm weather, when locomotives can haul heavier trains, when they consume less fuel, and when fewer employees can handle more traffic.

"4. The acquisition of more coal cars does not afford a practicable and complete remedy for existing difficulties. Under the transportation act, recently approved, the Interstate Commerce Commission is given the power to require carriers to provide themselves with sufficient cars. But most of the railroads have neither the money nor the credit with which to buy a supply of coal cars adequate for current needs under the present system of large seasonal shipments, so it would be useless for the commission to order them to purchase this equipment. On the other hand, most of the railroads which have enough money or credit to finance such purchases already possess an adequate number of coal cars to care for the needs of their own patrons, and they could not reasonably be required by the commission to purchase additional cars to take care of the traffic of other lines."

The report also continues in part as follows:

"The transportation act also appropriates $300,000,000 as a revolving fund, a part of which may be used for loans to the railroads. In view of the fact, however, that this money will very likely be used only in small part for new equipment, and that of the portion which is spent for equipment much will go for new locomotives, refrigerator cars, and other types of urgently needed rolling stock, it is not probable that any considerable number of coal cars will be purchased out of this fund. It has been estimated that 100,000 new coal cars will be necessary to handle properly the usual seasonal demand. These alone would cost the entire amount of the appropriation mentioned above. The same statute also provides for creating a general railroad contingent fund, made up of a portion of the excess earnings of prosperous railroads, out of which loans may be made to the railroads, and out of which the commission may purchase equipment and facilities to be leased to the railroads. This fund will, however, be wholly an expectancy for many months to come, and at least one more winter, with its heavy demand on the present totally inadequate coal-car supply, would elapse before any relief could be had from this quarter. Even if funds were immediately available with which to purchase coal cars, and only coal cars were to be built, the car shops in the United States could not turn out sufficient cars between now and next fall to handle properly the coal shipments during the winter of 1920-21, assuming that the proposed legislation were not enacted in the meantime. Finally, even if this money were obtainable, and cars could be turned out in sufficient quantity, the acquisition of cars which, under the present system of uniform freight rates on coal, would stand idle the greater part of the year, would entail enormous depreciation and capital charges, all of which would have to be borne by the coal transported during the rush season.

"5. It may be urged that the interstate commerce act now contains ample provisions to permit the commission or the carrier to institute lower summer-freight rates for coal. The conclusive answer to this contention is that, during the many years that the same provisions have been law, this practice has never been introduced. When the carriers have been asked to initiate such seasonal rates on coal, the request has usually been coupled with a demand that, while rates might be lowered in summer, they should not be raised in the winter, and the carriers, facing a consequent depletion of their revenues, have declined to co-operate on this basis. The shippers and consumers, motivated by their individual needs, have been by no means unanimous as to the amount of the difference in rates or the seasons in which lower or higher rates should prevail. In the very nature of the case, it is a subject for legislation, where Congress, representing all the people, may enact rules which will take into consideration the interests of the whole population.

"The Interstate Commerce Commission, while it might feel justified in approving schedules initiated by the carriers instituting such seasonal rates, could not make such differentials in rates permanent. The carriers, pressed by coal operators or consumers, might at any time file new schedules abandoning or modifying these seasonal rates. General confusion would result.

"The commission does not believe that it possesses the power to require the establishment of such seasonal rates on coal. It has never attempted to exercise this power, and its chairman states that it does not contemplate doing so in the future in the absence of further legislation. Even if the carriers, the shippers, and the commission could and did institute such seasonal rate schedules, their action in this matter would be the subject of interminable litigation. It would be contended that no power had been delegated to the commission to approve or initiate such seasonal rates, and the action of the commission in this connection would most likely be enjoined until the matter had been decided by the United States Supreme Court. The result would be that two or three winters might elapse before this urgently needed practice could be put into effect. Definite legislation, such as that proposed, will remedy the situation at once.

"While a considerable number of coal operators appeared at the hearings and testified against the proposed legislation, the opposition of the operators was by no means unanimous. One of the most earnest advocates of this legislation is Eugene McAuliffe, of St. Louis, Mo., a gentleman who is interested in various coal mines and public utilities, and who has had many years of experience in connection with the operation of railroads. Most of the operators who opposed the legislation founded their objections on local considerations peculiar to their own properties in relation to the changes in rates proposed in this legislation. For example, certain operators whose coal is of such inferior quality that it will not store satisfactorily feared the introduction of rates which will encourage the storage of the coal produced by their competitors. The subcommittee feels, however, that legislation which will result in incalculable benefit for the whole public, and which will entail but slight disadvantages for the great majority of mine operators, should not be denied approval because it may be injurious to the interests of isolated coal operators.

"Some of the criticism aimed at the proposed legislation was based on the fact that it affected coal moving to Lake Erie points for trans-shipment by water to upper lake ports and coal moving to tidewater, as well as coal moving but a short distance. This bill remedies the latter objection by specifically excluding from its operation coal moving on rates of 75 cents or less. It also confers on the Interstate Commerce Commission the broadest discretion to alter or modify the prescribed differentials where their enforcement might result in unreasonable hardship to individuals, communities, or carriers, thus permitting the commission to examine carefully and to remedy peculiar local situations which may be called to its attention.

"The committee realizes, of course, that the feasibility and effectiveness of the proposed legislation depends very largely upon the practicability of storing coal in large and small quantities. It therefore solicited and received a large amount of testimony from such experts as George Otis Smith, director of the Geological Survey, various coal operators, and from coal dealers on this point. As a result of this testimony and from information secured through correspondence, the committee entertains no doubt whatever but what practically every kind of coal mined in the United States can be stored safely, conveniently and cheaply. The tonnage of coal produced which cannot be stored satisfactorily is almost negligible. The committee is of the opinion that most of the testimony advanced to cast a doubt on the feasibility of storing coal is based almost uniformly on a disinclination to change the present hand-to-mouth policy. It feels that this ultra conservative attitude, in the face of constantly recurring coal famines, bringing unemployment and possible starvation in their wake, is entirely unwarranted."

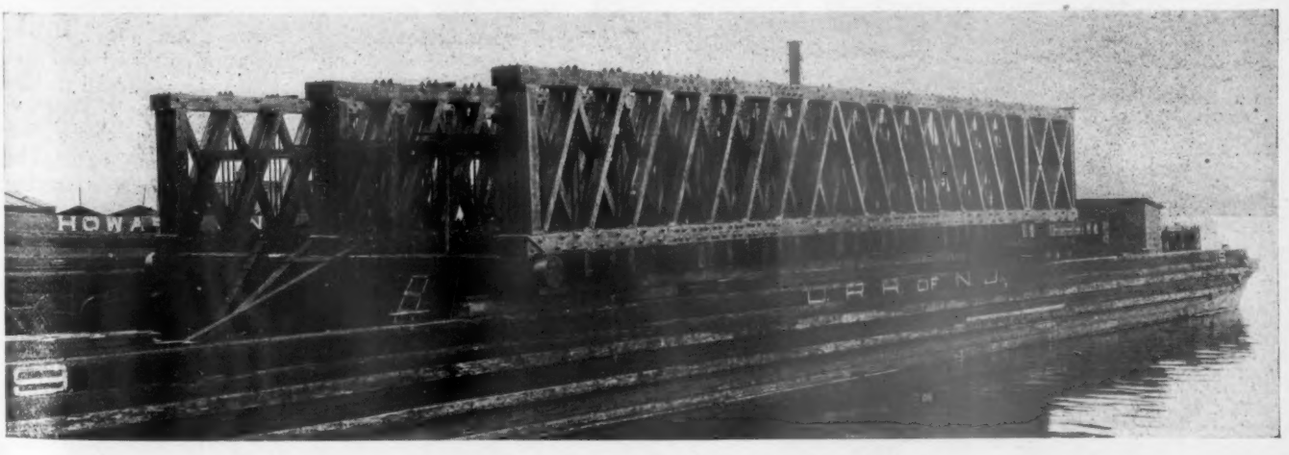
The bill provides that after 30 days following its enactment, no railroad subject to the act shall demand, collect, receive, or enforce, for the carriage of coal, any individual, proportional, or joint rate which is greater or less than 5 cents per ton more than the schedule base rate then in effect for shipments made during August; 15 cents per ton more than such rate for September; 25 cents per ton more than such rate for October, November and December, or 10 cents per ton more than such rate for January, or which is greater or less than 10 cents per ton less than the schedule base rate then in effect for February; 25 cents per ton less than such rate for March, April and May; 15 cents per ton less than such rate for June, or 5 cents per ton less than such rate for July.

Whenever the commission is of the opinion that any such rate as so reduced or increased, is or will be unjust or unreasonable or unjustly discriminatory or unduly preferential or prejudicial, the commission is authorized to determine and prescribe what will be the just and reasonable rate to be thereafter observed. Whenever the commission is of the opinion that any of the increases or deductions in rates as prescribed by the law, or by order of the commission, cause or will cause shipments of coal to be made in such disproportionately large or small quantities during the months in question as to prevent the carriers affected from handling their traffic properly, from using their equipment and facilities most uniformly and efficiently, or from receiving just and reasonable revenue from such coal traffic as a whole, the commission is authorized and empowered to prescribe what increases or deductions will be just and proper, to be thereafter observed. Nothing contained in this paragraph is to be construed to authorize or require any carrier to receive any rate less than its schedule base rate for coal which has already been carried by it, or by any other carrier, under a rate as reduced under the provisions of this paragraph or by order of the commission, unless a carriage by water has immediately preceded such subsequent carriage by rail, or any charge which is greater or less than that shown in its schedules for switching and other incidental services performed in connection with the carriage of coal, or any rate which is greater or less than its schedule base rate for the carriage of coal, when such schedule base rate is 75 cents or less per ton for the carriage in question. For the purposes of this act the schedule rate for the carriage of coal, except as otherwise provided herein, shall be construed to mean the schedule rate therefor as increased or reduced under the provisions of this paragraph or by order of the commission.

Framing Timber Bridge Trusses Before Treatment

THE CENTRAL RAILROAD of New Jersey recently completed the installation of a transfer bridge for a ferry slip at its Bronx terminal, consisting of a three-truss span composed of Howe trusses which were framed in their entirety, then dismantled, creosoted and reassembled before moving to their final location. The new structure replaced an old one which had been in continuous service for 13 years.

The erection of the bridge differed from the customary methods employed in that all the material entering into its construction was shipped direct to the creosoting plant at Port Reading, N. J., where it was assembled into the span. The members composing the bridge were run through the mill at the plant, where, in the majority of instances, they were sized by machinery and, where "gaining" was found necessary, the work was done on a tie-gaining machine. This



The Span after Creosoting Ready for Erection

practically eliminated hand labor and produced a uniform quality of work with a minimum possibility of error. As soon as this work was finished the different members were taken to an open area in the rear of the mill upon which a runway had been constructed previously to facilitate the erection. In assembling the bridge the heavier members were handled by locomotive cranes operating on tracks laid on each side of the runway.

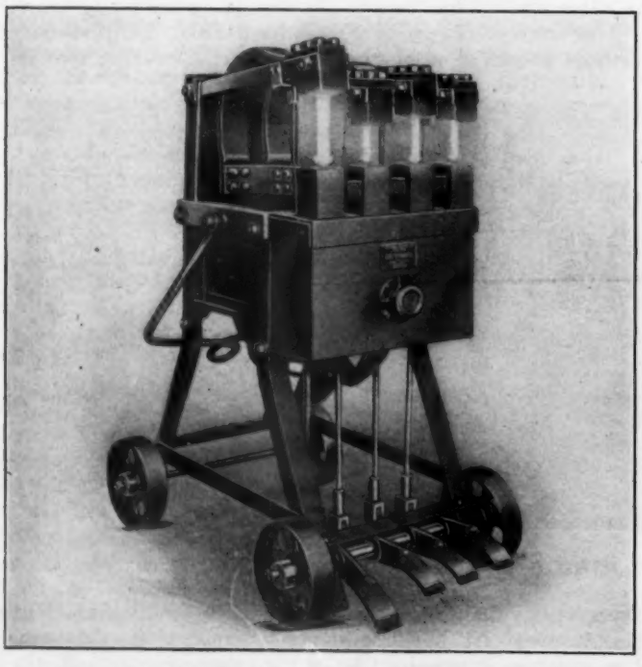
After the entire structure had been completely assembled and all connections made, the operation was reversed and the span was dismantled piece by piece. Each member was marked carefully for identification and then loaded on tram cars for conveying to the creosoting cylinders, where it received the full cell treatment, having been thoroughly air-seasoned for one year previous to framing. About 8.5 lb. of creosote oil was absorbed per cu. ft. of timber.

The work of reassembling was carried on without any serious difficulties. For purposes of moving to the site, the bridge itself was erected on an old carfloat about 235 ft. long and 36 ft. wide, drawing about 4t. 6 in. of water when light, the float having been moored in a slip between two piers upon which the tram cars carrying the creosoted timbers were run. The actual work of reassembling was similar to that in the original construction, the main difference being that to facilitate erection the entire structure was placed, in this case, on six car trucks of 50 tons capacity, each free to run on rails laid on the deck of the car float.

By framing the timber previous to treatment in this manner, it was not necessary to cut into the treated wood, less oil was required and it also cost less to erect, the plant being adjacent to the mill.

Electric Rivet Heaters

THREE ELECTRIC RIVET HEATERS have appeared on the market during the past year, and the results they have shown apparently indicate they have come to stay. One of these was described in the June 25, 1919, and another in the November 21, 1919, issue of the *Railway Age*.



A Four-Head, Type B-4 Humil Electric Rivet Heater

The one which has not been mentioned before is manufactured by the Humil Corporation, 101 Park avenue, New York.

Electrically, the Humil rivet heater consists of a specially designed transformer with a single primary winding and one or more secondary windings connected in multiple. The secondary terminals consist of heavy copper blocks between which the rivets are to be heated are placed. A control switch in the primary makes it possible to adjust the current or the heat quickly to any desired value within the limits of the machine.

The operation of heating rivets is very simple. The copper blocks which form the secondary terminals are forced apart by a handle or a foot treadle, a rivet is placed endwise between the blocks, and on releasing the handle or treadle the blocks are made to grip the rivet either by their weight or by springs, depending on the type of machine. A stop prevents the blocks from coming in actual contact with each other when there is no rivet between them. A little bump or a slight twist of the rivet insures contact and the rivet starts heating immediately. Owing to its smaller cross-section, the end of the rivet to be upset becomes hotter than the head of the rivet. This, of course, is a desirable feature. As the rivet is not heated in a blast of air, a rivet may be heated and cooled several times without injurious oxidation.

Rivets can be heated in from 3 to 150 seconds, depending upon the size of the rivet, the type of machine used and the number of rivets heated at once.

A machine designed for heating four rivets at once can be used to heat three rivets of larger sizes.

The machines are of rugged construction and the secondaries can be short-circuited indefinitely without injury to the transformers. They can be used in places where it is impossible to use oil furnaces, as they are compact and do not give off objectionable gases. The machines are built to operate on alternating current supply voltages from 110 to 550, but there is no danger to the operator, as the voltage across the secondary terminals is always less than five volts. From five to seven pounds of rivets can be heated with a power consumption of one kilowatt hour.

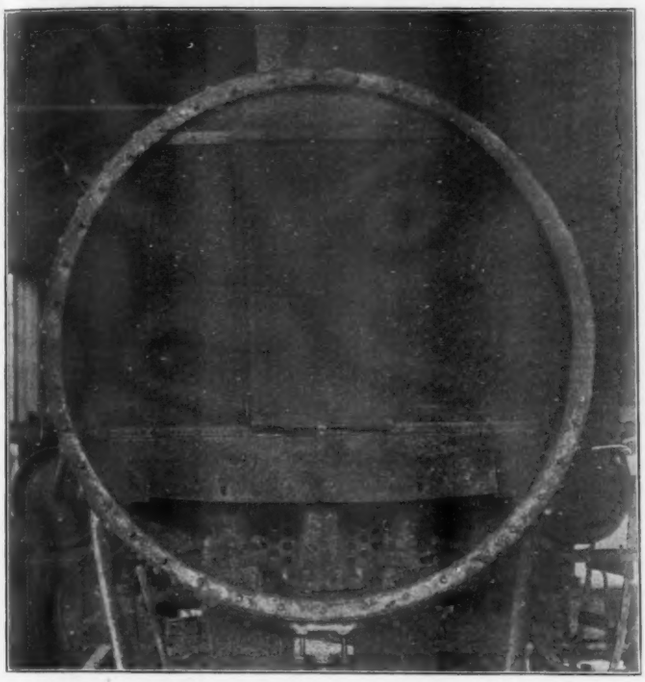
Quick Opening Door for Locomotive Spark Arrester

A FRONT END netting door which may quickly be removed and replaced and which has sufficient area of opening to facilitate thorough and rapid inspection of the spark arrester and draft appliances, is shown in the illustration. This device was developed and patented by John Herron, general foreman, Duluth, South Shore & Atlantic, Marquette, Mich., and the patents are controlled by Mr. Herron and John A. Higgins, Manistee, Mich. The features of this device which are of especial interest are the size of the door opening, the fact that it is locked in place by the use of one cotter key and the simplicity and rigidity of the door and door frame.

By referring to the drawing it will be seen that the entire device is built up of angle sections, the door itself being of ½-in. by ½-in. section, while the door frame is of 1¾-in. by 1¾-in. section. Both are built up by cutting 90-deg. V-notches in the horizontal flanges of the angles at points corresponding to the corners, then forming the frames by bending the vertical flanges at these points and completing the structure by welding. The door and frame angles are then fitted with countersunk bolts and the netting secured in place by the application of washers and nuts. The relative sizes of the door and frame are such that the door fits inside of the frame with an easy working fit. The door is held in place by retaining angles riveted to the top and bottom of the door frame, the vertical flanges of which extend up or down, as the case may be, in front of the door when it is placed in the frame. The frame is made enough longer

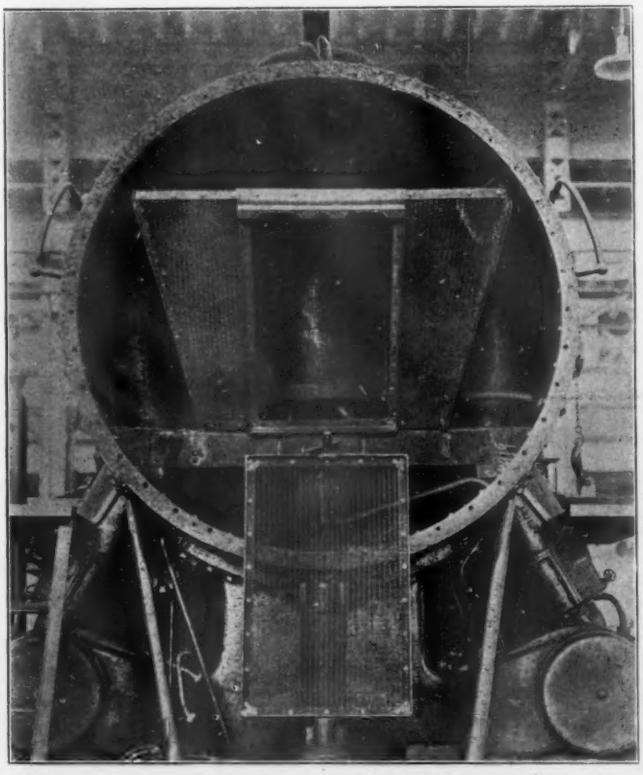
than the door to permit the latter to be raised so that it clears the bottom retaining angles.

Aside from the retaining angles, which prevent the door



Application of the Door to a Master Mechanic's Front End

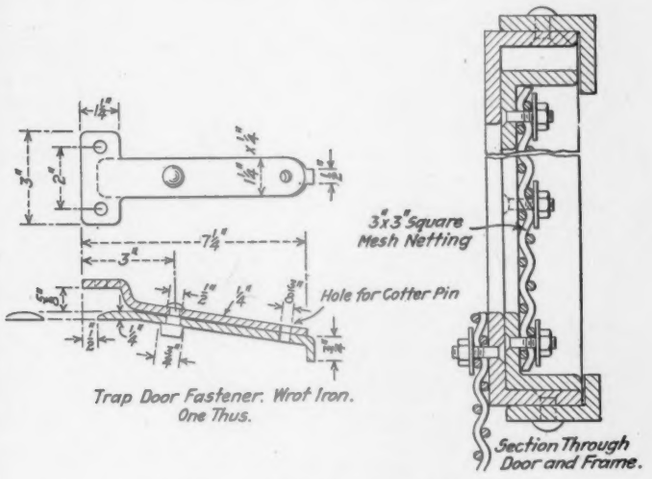
from being removed without raising it in the frame, it is also secured by a simple fastener, which is locked by the use of a single cotter key in a 3/8-in. hole. This fastener, which



The Door Applied to a Mudge-Slater Spark Arrester

is shown in detail in the drawing, consists of two parts, one of which is riveted to the bottom of the door. A movable piece is pivoted to the fixed piece in such a way that when it is latched under the door frame it lies under the fixed piece, to which it is immovably secured by the use of a cotter key. To unlock the door the key is removed and the movable piece turned parallel to the face of the netting, when the door may be raised and removed from the frame.

This door has been in use on a large number of the locomotives of the Duluth, South Shore & Atlantic since 1917,



Details of Herron Spark Arrester

and is also being applied to a number of locomotives on other railroads. In many localities where there is serious danger of fires from locomotive sparks during the dry season, inspection of the spark arrester and draft appliances is required as frequently as once every 24 hours. Under such conditions the convenience of a quick opening netting door of large area is apparent.

Gas Eliminating System for Refrigerator Cars

A SYSTEM for facilitating proper refrigeration of meat, vegetables or other substances subject to decomposition under ordinary atmospheric conditions, which is applicable alike to large or small ice boxes as well as to refrigerator cars, has been developed and is now controlled by the Acme Refrigerator Corporation, Chicago. This system, known as the Clinton Refrigerating and Eliminating System, is not in the ordinary sense of the term a refrigerating system. Its function is to remove from the atmosphere of the refrigerator the gases produced by bacterial action in the breaking down of the tissues of the product under refrigeration, and it is designed for use with any cooling system.

In all living animals there are myriads of active bacteria both toxic and anti-toxic. As soon as life is extinct, however, all anti-toxic activity ceases while that of the toxic bacteria continues. Immediate chilling to a temperature below 40 deg. F. causes the activity of all acid producing bacteria to be suspended, with the result that the meat becomes coated with a firm serum film which will protect the product against the action of air-born bacteria, provided the atmosphere surrounding the product is kept free from excessive moisture.

The action of bacteria on the product produces both heat and gas, the heat being removed by the circulation of the air over the cooling medium. The so-called tissue gas and other gaseous by-products resulting from bacterial activity, however, readily absorb moisture which is deposited against the cool surfaces of the product and the sides of the car. As

a result of such condensation the car sweats and becomes moldy, and the moisture deposited on the surface of the product dissolves the serum film and increases the moisture content above the point at which the activity of all harmful bacteria is suspended. In the case of meats, the result is a slimy surface and an increased bacterial activity which breaks down and liquefies the solid protein material with the production of the acids CH_3SH and H_2S, both of which have disagreeable odors. Essentially the action is the same in the case of vegetable products.

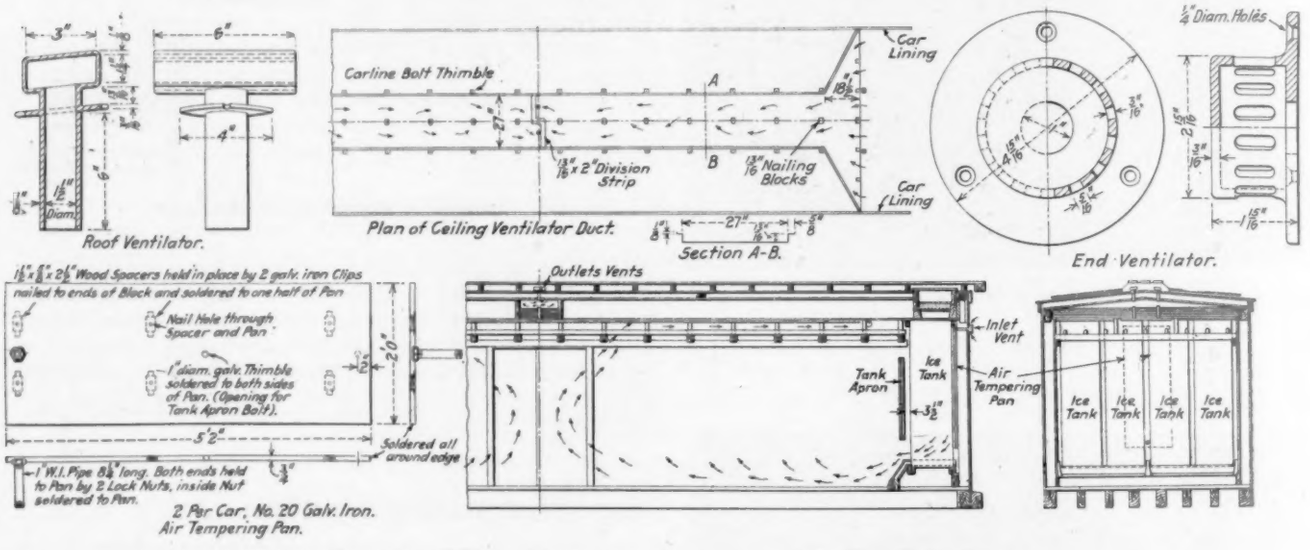
The design of the Clinton Eliminating System is based on the principle that it is necessary to remove from the car the bacterial produced gases without lessening the efficiency of the refrigeration and circulation of the atmosphere within the car. The removal of these gases with their high moisture content produces a dry, clean atmosphere, the condition least favorable for bacterial activity and hence most favorable for the preservation of perishable products.

The gases produced by bacterial action, due to their difference in density as compared with the air, tend to stratify in the upper part of the car close to the ceiling and the eliminating system makes use of this difference in density as the propelling force to remove these gases and replace them with air from outside the car. The gases are collected in a shallow duct 13/16 in. deep, located just below the ceiling and open for the full width of the car near its ends. The duct is divided into two parts near the longitudinal centerline of the car, from each of which an outlet vent is led through the roof, the tops of the vents being located under the running board. These vents have an inside diameter of 1½ in. and their continuity is broken in a chamber located between the ceiling insulation and the roof of the car.

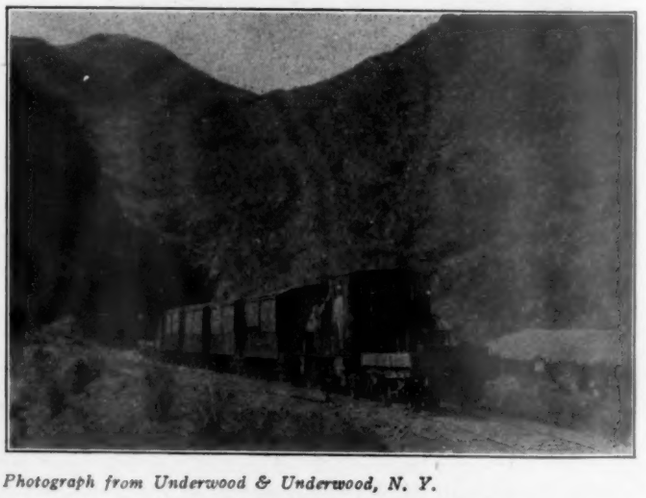
In order to effect the elimination of the gases collecting in this duct, provision must be made for drawing in an equivalent amount of fresh air. This is done through inlet vents in the ends of the car opening into thin air-tempering pans which are placed in the space between the end lining and the ice tanks. In the drawing these are shown to be 5 ft. 2 in. long by 2 ft. wide, and are only ¾ in. deep. The vents through the ends of the car open into the pans near the top and the pre-cooled air is admitted to the car through openings just above the bottom on the sides facing the ice tank. The air is thus cool and dry before it enters circulation in the car. The amount of air admitted is only sufficient to replace the weight of the lighter gases collecting in the top of the car and passing out through the outlet vents. As these gases are not only heavily charged with moisture but carry a considerable amount of heat resulting from bacterial action, the ease with which the proper conditions of refrigeration may be maintained is considered to be more than an offset for the amount of heat which must be removed from the replacement air.

As an inspection of the drawing will show, the Clinton Eliminating System consists essentially of but two parts, the gas collecting duct attached to the ceiling of the car and the ice tempering pans which are attached to the end lining of the car and occupy a portion of the space between the lining and the ice tanks. It will be seen that the system may, therefore, readily be installed in existing refrigerator cars with only minor alterations in the car structure to accommodate the inlet and outlet vents.

This system has been installed in a number of cars of the Cudahy Refrigerator Line. The service of this equipment during the last hot season was satisfactory in that it has apparently demonstrated the correctness of the principle of the system as a means of greatly reducing the rate of decomposition of perishable products, and more cars are to be equipped.



Details of the Clinton Eliminating System and Method of Application



Photograph from Underwood & Underwood, N. Y.

Formosa Railroad; Tunnel at Kelung

General News Department

A. B. Konsberg, dealer in railway equipment, has moved his offices from 226 South La Salle street, Chicago, to 40 North Dearborn street.

Fifty thousand dollars, not $500,000, as reported, was the amount of the loss by the fire at the shops of the Atlantic Coast Line at Waycross, Ga., on the night of April 8.

The Southern Traffic League, composed of merchants' freight bureaus of prominent cities, held its annual meeting at Jacksonville, Fla., last week, and action was taken looking to the extension of the league into a number of smaller cities. C. S. Hoskins, of Tampa, Fla., was chosen president of the League.

A new train from New York to Cincinnati is announced by the Pennsylvania Railroad, to run through in eighteen hours; and the fast train to St. Louis, leaving New York 5:04 p. m., will leave instead at 4.50, and will have no connection for Cincinnati. The fast trains between New York and Cleveland, taken off two years ago, are to be restored.

The general grievance committee of the Canadian Brotherhood of Railroad Employees, in session at Winnipeg, has undertaken a revision of wage schedules and working conditions for 3,500 employees in the clerical, freight and station departments of the Canadian National Railways. The new schedule will be presented to the railway officers in the near future.

W. H. Finley, president of the Chicago & North Western, presented a paper on "Some Railroad Problems" before the Railway Engineering section of the Western Society of Engineers, Chicago, on Thursday evening, May 20. In this paper Mr. Finley included a discussion of the labor turnover, finances, operation and the provision of proper equipment.

Operation of the New York Barge Canal would be removed from the jurisdiction of the War Department by a joint resolution adopted by the Senate on May 10. By the transportation act waterway facilities operated by the Railroad Administration during the period of federal control of the railroads were turned over to the War Department for operation.

Decreased business in the last month, caused by congestion on connecting lines, has caused the Chicago, Peoria & St. Louis to close its Jacksonville (Ill.) shops. Embargoes have made it impossible to obtain empty cars in sufficient number to take care of local freight business and the resultant lack of funds necessitated a curtailment of expenses. Resumption of shop operations is expected with an improvement in conditions.

An increase of 30 per cent in freight rates, in Eastern territory—absolutely necessary to the continuation of efficient service—was the subject of an address by Daniel Willard, president of the Baltimore & Ohio, before the Cincinnati Chamber of Commerce on May 12; and following the address the meeting voted unanimously to approve the proposal. The resolution which was adopted will be sent to the chairman of the Interstate Commerce Commission.

The Interstate Commerce Commission has invited the National Association of Railway & Utilities Commissioners to select three state railroad commissioners to sit with the Interstate Commerce Commission in an advisory capacity in the 1920 advanced rate case, on which hearings are to begin on May 24. The transportation act authorizes the commission to "avail itself of the co-operation, services, records and facilities" of such state authorities in the enforcement of any provision of the act.

The American Railroad Master Tinners', Coppersmiths' and Pipecutters' Association will hold its annual convention at the Hotel Sherman, Chicago, from June 1 to 4, inclusive. Among the subjects which will be discussed are: Headlights and Their Maintenance, Locomotive Jackets, Manufacturing and Locomotive Tin Shops, Steam Heat and Its Upkeep; Acetylene Welding in the Tin Shop, Arc Welding in the Tin Shop; Repairs to Steel Coaches, Methods of Babbitting, Reclamation of Scrap Sheet Metal and Air Brake Piping.

Engineering Council in a referendum on a National Department of Public Works conducted by the Chamber of Commerce of the U. S. A., voted as follows on the three questions propounded: Shall a department of public works be established by the national government? In favor. Shall a department of public works be established by suitable modification of the existing Department of the Interior, excluding therefrom the non-related bureaus and offices and by change of name from the Department of the Interior to the Department of Public Works? In favor. Shall a department of public works be established by the creation of an entirely new department? Opposed.

Frank P. Walsh charges that the Phœnix Transit Company, which operates the floating equipment formerly owned by the Erie Railroad in New York Harbor, has been violating the Adamson Eight-Hour Law by working its employees in 12-hour shifts. Mr. Walsh, representing marine employees who have been on strike, presented these charges to the Department of Justice at Washington last week. He says that the strike was caused by the action of the Erie in turning its floating equipment over to a separate organization as a subterfuge to evade the law. It is claimed that the company is nevertheless responsible for this service as a common carrier, within the meaning of the law, and that if the law were enforced the strike would be settled.

The International Railway Fuel Association will hold its twelfth annual meeting at the Hotel Sherman, Chicago, on May 24 to 27, inclusive. Among the speakers will be Roy V. Wright, managing editor, *Railway Age*; C. M. Darling, fuel engineer, United States Bureau of Mines, who will speak on "The Possibility of Sub-Bituminous and Lignite Coal"; Eugene McAuliffe, president, Union Colliery Company, who will speak on "Economic Aspects of the Railroad Oil Situation"; Walter Bohnstengel, assistant engineer tests, Atchison, Topeka & Santa Fe, Topeka, who will discuss "Oil Burning Practice on Locomotives with Resultant Fuel Permanence on the A. T. & S. F."; D. C. Buell, director, Railway Educational Bureau, Omaha, Neb., who will talk on "Fuel Economy Kinks"; and George Esherick, Jr., who will discuss "Carbocoal." Reports will also be presented on locomotive feed water heating, fuel accounting, firing practice, front ends, grates and ash pans and fuel stations.

Payne Appointed Director General

President Wilson on May 18 issued two proclamations appointing John Barton Payne, Secretary of the Interior, as director general of railroads, to have charge of the liquidation of the Railroad Administration, and also as the agent designated in Section 206 of the Transportation act, to be sued for the government on account of transactions growing out of federal control, to succeed Walker D. Hines. Judge Payne was general counsel of the Railroad Administration during its first year, resigning to become chairman of the Shipping Board, which he left to accept his present cabinet office. It had been expected that Max Thelen, director of the Division of Liquidation Claims, would be appointed as Mr. Hines' successor, but the plan was changed for some reason.

REVENUES AND EXPENSES OF RAILWAYS

TWO MONTHS OF CALENDAR 1920

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses						Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
		Freight.	Passenger.	Total (inc. misc.)	Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.					
Northern Ala.	110	$203,864	$27,894	$265,667	$65,240	$10,294	$3,596	$113,231	$3,116	$195,479	73.58	$70,187	$7,384	$62,752	$68,823
Oregon Short Line	2,347	4,606,416	1,044,291	7,665,546	624,832	1,134,176	46,496	2,355,666	211,196	4,510,085	58.83	3,155,461	432,085	2,722,811	1,714,256
Oregon-Wash. R.R. & Nav.	2,070	3,803,255	999,610	5,574,789	763,386	879,864	56,588	2,275,792	202,685	4,239,191	76.04	1,335,598	323,103	1,012,280	748,011
Panhandle & Santa Fe	772	877,712	268,470	1,304,339	208,507	442,266	8,926	565,348	33,924	1,257,298	96.39	47,041	40,876	6,142	287,858
Penn. R.R. Western Lines	1,754	10,668,418	3,279,370	17,206,560	2,203,204	5,734,096	179,783	8,720,190	451,742	17,443,471	101.37	—236,911	692,476	—931,496	—177,962
Penn. R.R.-Eastern Lines	5,376	36,527,839	13,784,169	56,667,128	8,641,835	22,026,421	754,174	32,035,118	1,588,543	66,268,777	116.94	—9,601,649	1,821,370	—11,440,520	11,410,801
Peoria & Pekin Union	19	81,794	7,457	313,894	24,298	78,569	765	180,625	7,946	292,203	93.08	21,691	19,000	2,691	75,106
Pere Marquette	2,230	3,858,525	840,609	5,699,581	529,308	1,553,917	82,395	3,162,638	158,058	5,509,546	96.67	190,035	116,677	72,559	—513,798
Perkiomen	41	166,731	16,682	204,052	15,943	8,318	25	87,461	531	112,320	55.04	91,732	689	91,042	28,013
Phila. & Reading	1,126	10,746,556	1,627,905	13,352,450	1,264,082	4,746,434	80,627	7,040,238	297,320	13,472,365	100.90	—119,916	132,028	—252,025	329,928
Phila., Bethlehem & N. E.	71	.....	.....	157,682	28,569	24,777	816	145,926	2,618	202,707	128.55	—45,025	2,060	—47,085	—77,738
Pitts. & Lake Erie	224	5,101,660	447,509	6,037,617	920,906	2,157,125	41,885	2,160,316	99,912	5,384,984	89.19	652,634	150,000	502,267	—508,905
Pitts. & W. Va.	63	271,958	16,634	323,028	64,405	184,552	3,903	140,820	12,920	425,602	131.75	—102,574	28,670	—131,770	—9,400
Pitts. & Shawmut	103	235,178	8,711	246,418	43,765	67,744	3,113	96,448	7,224	218,294	88.58	28,124	212	27,912	56,610
Pitts., Cinc., Chicago & St. L.	2,283	10,338,542	3,314,092	17,990,607	1,877,475	6,193,439	195,857	8,735,418	405,534	17,566,844	97.64	423,763	587,782	—164,869	70,600
Pitts., Shawmut & Northern	204	228,778	12,994	246,359	40,279	100,523	4,924	122,875	14,961	283,564	151.01	—37,204	3,804	—41,008	21,498
Port Reading	21	263,848	.....	362,161	28,481	40,459	43	241,315	526	310,823	85.82	51,338	—3,249	54,587	—46,269
Quincy, Omaha & K. City	255	124,007	45,583	217,844	32,753	45,914	223	135,022	3,548	217,433	99.81	411	7,295	—6,892	1,882
Richmond, Pt. Frd. & Potomac	81	615,069	394,751	1,366,192	75,972	211,083	13,031	513,326	30,615	846,931	61.99	519,261	36,698	482,554	—152,785
Rutland	415	397,578	203,721	797,187	120,115	211,886	11,561	441,830	28,652	817,183	102.51	—19,996	35,536	—55,542	66,668
St. Joseph & Grand Island	258	415,213	73,054	549,967	94,477	92,204	4,428	289,943	25,511	508,374	92.43	41,593	21,822	19,734	60,384
St. Louis, Brownsville & Mex.	548	556,049	349,645	1,038,808	297,416	252,706	13,045	360,545	41,851	962,059	92.61	76,749	19,600	56,747	—137,337
St. Louis Merchants' Bridge Terminal	9	.....	1,420	666,415	97,525	128,066	1,480	502,434	11,775	741,280	111.23	—74,866	16,500	—91,366	—49,421
St. Louis-San Francisco	4,761	9,717,057	3,613,287	14,224,035	2,107,646	3,141,173	127,482	6,104,494	417,351	11,871,808	83.46	2,352,227	450,110	1,987,813	764,794
St. Louis Transfer	6	.....	.....	262,617	20,359	41,546	361	145,746	4,284	212,346	80.85	50,271	220	50,050	10,077
St. Louis S. W.	939	2,602,580	326,106	3,131,899	406,943	671,442	48,188	801,046	73,485	2,010,086	64.21	1,121,813	85,968	1,035,752	840,548
St. Louis S. W. of Texas	807	1,011,305	243,499	1,452,289	424,034	536,680	18,904	908,494	51,756	1,939,349	133.53	—487,061	54,468	—541,744	—271,204
San Antonio & Aransas Pass	736	428,725	171,098	736,028	305,086	250,729	12,386	407,991	34,959	1,010,641	137.31	—274,612	30,000	—304,881	—169,641
Seaboard Air Line	3,563	5,724,925	1,620,232	9,054,804	1,184,864	1,648,759	170,070	3,979,222	216,679	7,310,450	80.73	1,744,354	300,000	1,442,647	1,185,075
South Buffalo	11	61,176	.....	171,960	11,852	30,776	876	113,075	2,793	159,373	92.68	12,588	—7,160	5,428	—90,336
Southern	6,983	16,077,986	5,169,385	25,525,151	3,847,998	4,729,016	339,339	11,135,652	589,278	20,899,638	81.87	4,625,512	750,610	3,869,824	2,573,241
Southern Ry. in Miss.	278	217,784	107,551	374,773	86,037	47,934	7,627	174,347	9,609	325,555	86.86	49,218	19,600	29,600	27,312
Southern Pacific	7,024	17,292,992	7,605,501	29,143,505	4,749,096	6,033,969	249,187	11,205,737	514,924	23,390,373	80.25	5,753,132	1,838,149	4,405,640	1,563,228
Southern Pacific S. S. Lines	.....	1,217,005	48,225	1,347,162	20,320	1,215,524	31,063	1,349,474	50,178	2,666,559	197.93	—1,319,397	20,002	—1,339,398	—1,380,066
Spokane International	156	215,883	34,677	256,430	29,750	21,709	4,491	78,525	10,503	145,092	56.58	111,338	9,688	101,629	69,882
Spokane, Portland & Seattle	538	957,401	267,028	1,371,359	290,866	168,920	13,618	468,844	44,515	994,799	72.54	376,561	160,000	216,219	170,593
Staten Island Rapid Transit	23	137,413	133,662	294,206	60,265	72,022	2,504	216,887	17,995	369,672	125.65	—75,465	30,000	—105,465	—132,611
Tennessee Central	292	350,558	80,934	491,638	101,312	116,778	10,606	234,577	15,044	478,314	97.28	13,323	10,212	3,107	106,975
Terminal R.R. Assn. of St. L.	36	.....	5,427	743,288	126,004	132,510	1,952	365,910	8,906	643,620	86.59	99,669	66,279	33,385	130,050
Tex. & Ft. Smith	87	219,117	43,120	308,580	41,904	33,650	1,520	58,997	4,278	142,633	46.22	165,948	31,556	134,374	103,245
Tex. & N. Orleans	469	1,051,939	312,584	1,566,891	281,216	401,324	10,117	587,071	34,658	1,391,358	88.79	175,533	42,258	130,452	231,500
Texas & Pacific	1,946	3,990,552	1,942,813	6,731,813	1,123,363	1,496,559	68,524	2,977,802	143,727	5,891,955	87.52	839,858	224,200	614,780	718,031
Toledo & Ohio Central	435	1,521,952	131,035	1,772,410	167,561	530,676	29,679	860,765	36,824	1,631,758	92.06	140,652	74,356	66,268	296,774
Toledo, Peoria & Western	247	194,155	97,393	310,705	33,700	94,018	5,075	181,332	10,424	324,549	104.45	—13,844	17,006	—30,843	—21,397
Toledo, St. Louis & Western	454	1,459,372	60,092	1,640,274	192,494	352,427	13,598	767,580	21,862	1,347,960	79.74	292,314	62,000	230,020	134,810
Trinity & Brazos Valey	368	246,250	39,389	313,822	142,822	117,623	4,645	171,045	14,916	451,051	143.73	—137,229	19,563	—150,886	—58,341
Ulster & Delaware	128	62,068	28,109	155,917	32,852	40,180	2,640	111,300	9,130	196,929	126.30	—41,012	10,000	—51,010	4,157
Union R. R. of Penna.	40	.....	.....	1,182,965	102,806	422,173	541	812,549	15,732	1,353,801	114.44	—170,836	13,456	—184,291	—257,814
Union Pacific	3,614	13,845,945	2,931,390	20,548,338	2,108,407	3,645,936	87,461	6,114,913	492,360	12,887,416	62.72	7,660,922	576,842	7,082,679	2,128,802
Utah	98	342,832	1,036	344,888	19,877	59,836	432	83,115	4,761	168,020	48.71	176,868	9,089	167,778	99,258
Vicks., Shreveport & Pacific	171	464,329	186,587	737,037	77,531	127,520	14,211	305,638	20,027	552,838	75.01	184,199	23,728	160,383	108,482
Virginian	523	1,820,189	108,296	2,190,302	238,432	477,941	8,438	975,894	34,714	1,732,589	79.10	457,713	90,000	367,708	514,286
Wabash	2,473	6,269,770	1,488,627	9,157,840	1,177,239	2,577,468	118,107	4,566,455	255,332	8,742,024	95.45	415,816	245,026	169,715	131,930
Washington Southern	35	250,543	195,646	685,472	64,209	89,321	6,785	269,253	14,242	451,678	65.89	233,794	14,669	219,112	—150,613
West Jersey & Seashore	361	501,500	788,828	1,438,407	480,652	394,924	22,582	1,045,696	45,864	2,004,337	139.34	—565,930	97,984	—664,020	282,122
Western Md.	689	2,345,825	148,539	2,740,078	517,378	1,198,592	105,565	1,094,129	85,520	3,025,038	110.39	—284,961	86,400	—371,361	—40,844
Western Pacific	1,041	1,980,297	258,124	2,385,733	396,853	429,223	34,808	780,334	55,356	1,736,949	72.81	648,785	119,541	529,027	480,765
Western Ry. of Ala.	133	271,556	137,970	484,346	59,656	93,192	12,063	170,366	12,703	355,930	73.48	128,416	12,250	116,159	58,756
Wheeling & Lake Erie	511	1,840,440	114,056	2,169,152	227,394	639,880	28,748	1,053,240	49,445	2,004,652	92.42	164,500	127,000	37,499	380,616
Wichita Falls & N. W.	328	313,400	108,767	462,331	110,179	61,231	4,067	271,376	12,459	459,310	99.34	3,020	22,357	—19,551	11,326
Yazoo & Miss. Valley	1,381	3,559,886	1,019,844	5,026,114	881,991	1,104,091	42,074	1,864,764	106,999	4,007,482	79.73	1,018,632	151,800	863,614	295,566
San Ant., Uvalde & Gulf	217	110,536	102,132	224,834	125,437	51,103	4,387	114,420	8,994	304,340	135.36	—79,506	4,579	—84,126	—18,321
Wichita Valley	256	217,023	86,268	331,460	46,039	21,622	275	144,922	5,011	217,868	65.72	113,592	10,172	103,418	122,060
Mississippi Central	164	72,636	41,073	134,771	81,996	75,988	3,765	116,654	13,537	291,940	216.61	—157,169	7,817	—165,147	—125,353
Lake Terminal	12	.....	550	187,231	26,940	43,158	.....	135,691	70	205,859	109.94	—18,627	11,535	—30,163	—49,792
Lake Superior & Isphpeming	34	11,639	523	13,908	39,297	34,479	345	20,319	4,887	99,328	714.18	—85,421	7,744	—93,165	—12,518

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF MARCH, 1920

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses						Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
					Maintenance of										
		Freight.	Passenger.	Total (Inc. misc.)	Way and structures.	Equipment.	Traffic.	Transportation.	General.	Total.					
Alabama & Vicksburg	141	$150,776	$64,851	$233,939	$35,298	$39,831	$4,046	$85,183	$10,159	$177,300	69.81	$56,640	$14,244	$42,395	$43,094
Alabama Great Southern	312	606,498	171,541	843,405	82,352	205,636	12,326	320,531	18,734	642,910	78.07	180,495	34,314	146,081	96,921
Atchison, Topeka & Sant Fe	8,723	10,991,175	3,835,046	16,075,181	2,743,980	3,988,351	153,469	5,833,939	292,284	13,028,629	81.05	3,046,552	931,650	2,114,333	836,980
Atlanta, Birmingham & Atlanta	639	354,598	67,824	454,201	101,307	117,522	2,148	161,793	13,387	317,469	162.35	—121,921	12,300	—134,222	—108,296
Atlanta & St. Lawrence	166	155,253	26,052	195,547	69,746	69,371	21,288	237,851	17,725	495,728	109.14	—41,527	16,479	—58,007	—62,458
Atlantic City	177	110,740	144,962	269,563	49,964	43,494	1,278	174,248	1,436	270,508	100.35	—945	14,520	—15,465	—18,587
Atlantic Coast Line	4,891	3,628,644	1,891,289	5,959,249	764,713	1,244,484	50,219	2,622,080	114,296	4,849,088	81.37	1,110,161	265,000	842,676	289,291
Baltimore & Ohio Chicago Terminal	90	.....	.....	238,526	25,184	66,246	970	156,439	9,690	263,090	110.20	—24,564	30,669	—55,233	44,819
Baltimore, Chesapeake & Atlantic	87	82,962	27,341	116,731	6,918	46,490	921	67,164	3,714	125,207	107.26	—88,477	3,700	—12,177	4,630
Bangor & Aroostook	658	383,298	91,395	498,251	143,104	139,065	3,871	211,729	19,707	524,424	105.25	—26,173	27,001	—53,174	—87,164
Beaumont, Sour Lake & Western	118	139,398	30,066	174,591	32,991	15,110	1,871	49,872	5,312	105,082	60.18	69,509	2,850	66,636	97,778
Belt Ry. Co. of Chicago	31	.....	.....	377,324	27,914	78,590	591	227,967	8,331	343,393	91.01	33,931	19,384	14,547	30,290
Bessemer & Lake Erie	217	542,433	39,108	606,573	90,955	329,427	10,320	267,629	27,377	730,407	120.41	—123,834	15,800	—139,634	—79,226
Bingham & Garfield	36	134,495	1,679	137,206	25,155	31,626	1,509	33,513	3,388	96,775	70.53	40,431	7,425	33,006	64,254
Birmingham Southern	31	34,918	.....	48,669	4,511	9,764	1,565	29,927	3,559	49,327	101.34	—658	1,754	—2,412	—13,525
Boston & Maine	2,304	3,860,179	1,752,506	6,216,164	1,336,086	1,478,896	34,858	3,524,200	218,677	6,627,454	106.61	—411,291	234,887	—646,243	—424,281
Buffalo, Rochester & Pittsburgh	589	1,366,264	138,021	1,555,998	160,851	473,725	12,344	711,240	35,822	1,396,249	90.90	159,749	35,000	124,737	155,176
Canadian Pacific Lines in Maine	233	270,137	60,875	343,515	52,549	94,833	2,744	211,863	2,721	365,710	106.46	—22,195	12,200	—34,395	—19,087
Central New England	301	395,209	27,499	444,329	150,560	108,258	2,863	280,575	16,688	559,072	125.82	—114,743	18,800	—133,543	—39,857
Central of Georgia	1,924	1,385,176	491,608	2,073,346	326,833	396,895	36,967	901,989	69,363	1,731,784	83.52	341,563	77,397	264,185	236,530
Central Vermont	413	401,567	82,006	531,001	73,931	136,085	9,335	348,208	19,715	589,409	110.99	—58,409	17,400	—75,819	6,603
Charleston & Western Carolina	342	187,948	50,126	256,346	53,765	54,286	4,994	146,808	2,947	262,800	102.52	—6,454	8,500	—14,954	—43,369
Chesapeake & Ohio	2,516	4,985,998	777,281	6,200,033	752,270	1,638,691	40,763	2,580,625	150,300	5,191,926	83.74	1,008,106	229,810	778,265	170,029
Chicago & Alton	1,050	1,565,024	487,251	2,197,265	244,917	539,515	22,969	1,026,067	63,838	1,912,740	87.05	284,524	72,434	212,013	190,881
Chicago & Eastern Illinois	1,131	1,685,945	416,022	2,311,008	228,686	771,858	18,480	1,014,533	82,064	2,128,123	92.08	182,885	100,000	82,667	432,565
Chicago & Erie	269	754,945	61,609	887,604	61,851	134,256	9,389	457,446	27,572	695,564	78.36	192,040	40,909	150,969	101,548
Chicago Great Western	1,496	1,047,830	430,835	1,638,790	236,201	469,854	21,945	857,750	51,490	1,655,088	100.99	—16,299	67,061	—83,398	—203,538
Chicago Junction	12	.....	.....	293,685	51,967	88,061	224	337,089	9,639	386,980	131.76	—93,295	2,992	—96,287	39,253
Chicago, Milwaukee & St. Paul	10,628	9,407,888	2,404,885	13,114,063	1,242,794	2,905,391	92,108	5,999,847	358,309	10,682,253	81.45	2,431,811	677,263	1,754,515	1,936,331
Cincinnati, Indiana & Western	321	306,391	53,534	378,556	44,332	116,283	7,542	158,652	17,868	345,690	91.31	212,866	15,569	17,297	32,362
Cincinnati, New Orleans & Texas Pacific	337	1,086,495	286,502	1,470,822	153,773	395,364	21,179	594,928	33,970	1,212,908	82.46	257,914	58,967	198,948	104,237
Cincinnati Northern	251	267,691	20,471	297,845	21,834	48,217	2,192	83,554	5,566	161,363	54.17	136,483	9,615	126,868	85,682
Cleveland, Cincinnati, Chicago & St. L.	2,408	5,103,832	1,379,426	7,046,588	528,244	1,340,502	69,073	2,618,193	122,596	4,729,516	67.11	2,317,072	210,010	2,106,716	1,324,751
Colorado & Southern	1,099	727,947	188,109	987,908	128,487	222,504	10,400	373,006	45,944	786,201	79.58	201,708	59,791	141,786	—7,267
Colorado & Wyoming	43	20,961	987	78,359	12,345	21,462	202	40,600	4,007	78,617	100.32	—259	5,000	—5,259	—15,289
Delaware, Lackawanna & Western	956	3,517,463	846,309	5,082,370	513,394	1,327,012	65,879	2,948,630	140,466	5,059,816	99.55	22,555	287,500	—264,945	—842,418
Denver & Rio Grande	2,585	2,172,395	363,071	2,711,060	288,234	735,954	30,525	914,050	78,462	2,091,441	77.14	619,619	125,000	494,618	408,533
Denver & Salt Lake	255	106,612	22,336	136,799	53,424	85,950	722	114,417	8,393	262,907	192.18	—126,108	10,583	—136,691	—16,200
Detroit & Mackinac	376	129,189	32,999	172,129	15,088	34,322	3,689	83,088	6,561	142,725	82.91	29,405	9,571	19,655	30,605
Detroit, Toledo & Ironton	454	372,562	15,374	408,538	62,120	72,389	6,022	172,276	15,466	328,273	80.35	80,265	8,582	71,683	151,648
Duluth & Iron Range	292	87,337	23,970	127,024	61,911	110,767	845	118,096	20,713	312,561	246.06	—185,537	7,667	—193,205	—61,807
Duluth, Missabe & Northern	407	130,831	49,471	207,471	125,809	186,367	2,275	154,118	18,865	489,190	235.78	—281,719	13,748	—295,467	—167,471
Duluth, South Shore & Atlantic	614	170,089	74,167	272,646	56,537	50,129	5,039	184,691	13,781	313,766	115.08	—41,119	20,500	—61,628	—43,182
Duluth, Winnipeg & Pacific	178	166,506	30,496	200,184	23,161	42,471	2,940	100,839	9,466	178,882	89.35	21,302	10,186	11,116	—23,697
El Paso & Southwestern	1,027	758,859	191,453	1,003,102	185,224	239,836	11,714	332,517	38,426	808,753	80.63	194,849	100,415	94,428	—221,409
Elgin, Joliet & Eastern	832	1,712,926	2	1,979,242	164,567	493,394	6,596	773,593	33,438	1,471,532	74.34	506,709	51,600	455,109	2,870
Erie	1,989	6,667,935	1,055,816	8,500,417	721,489	2,456,554	71,075	4,221,684	217,074	7,749,374	91.16	751,042	253,739	491,104	1,450,387
Florida East Coast	764	687,390	494,213	1,315,134	132,527	162,169	7,664	439,400	25,234	781,360	59.41	533,774	39,583	494,105	408,097
Fonda, Johnstown & Gloversville	88	41,903	60,974	107,584	16,678	9,631	442	40,271	4,960	71,983	66.90	35,602	5,075	30,526	12,149
Ft. Smith & Western	253	107,948	27,917	146,298	39,778	40,059	4,086	62,959	6,812	154,818	105.82	—8,520	5,000	—13,762	—21,776
Ft. Worth & Denver City	454	580,014	262,366	880,284	150,460	221,852	5,386	411,526	36,737	825,794	93.81	54,490	23,100	31,369	—134,277
Ft. Worth & Rio Grande	235	80,512	62,553	153,235	39,774	23,092	1,561	80,475	6,494	151,336	98.76	1,899	3,785	—1,886	40,599
Galveston Wharf	13	.....	.....	102,310	20,600	3,020	363	42,199	2,903	82,952	81.07	19,359	14,500	4,859	7,900
Georgia	328	396,339	130,461	564,189	54,762	109,662	13,127	283,760	17,149	478,657	84.83	85,531	5,950	79,581	—60,460
Georgia Southern & Fla	402	237,195	130,369	395,447	49,108	99,796	5,729	184,194	12,092	351,601	88.91	43,846	19,250	24,596	17,559
Grand Trunk Western Ry. Company	350	2,923,691	557,829	3,879,829	303,003	1,120,982	46,691	1,796,279	113,635	3,391,571	87.41	488,259	131,359	357,054	—159,084
Great Northern	8,175	5,277,896	1,547,955	7,713,119	1,525,997	2,009,003	58,908	3,736,183	201,191	7,664,412	99.36	48,707	773,821	—726,165	—1,025,032
Gulf & Ship Island	307	164,156	46,544	226,897	55,319	58,711	4,108	86,446	13,036	217,976	96.06	8,921	8,965	—56	10,432
Gulf, Colorado & Santa Fe	1,907	1,481,394	471,564	2,101,389	526,325	392,997	18,461	828,583	48,993	1,814,788	86.36	286,601	87,016	199,419	157,335
Gulf, Mobile & Northern	407	237,202	51,910	303,064	69,746	68,103	9,616	118,455	17,072	282,993	93.37	20,072	13,745	6,328	33,376
Hocking Valley	350	965,015	102,502	1,117,081	128,694	366,184	5,824	420,958	28,467	950,125	85.05	166,956	68,457	98,499	230,629
Indiana Harbor Belt	120	.....	.....	704,748	100,890	183,290	2,098	463,457	18,576	768,311	109.01	—63,563	10,070	—73,634	5,213
International & Great Northern	1,159	955,843	220,727	1,261,696	342,905	368,830	17,643	762,451	46,394	1,544,912	122.44	—283,216	32,500	—315,986	—1,600
Kanawha & Michigan	176	295,437	44,732	352,340	45,823	141,658	865	137,276	12,209	337,837	95.88	14,504	25,000	—10,496	16,876
Kansas City, Mexico & Orient	272	88,030	13,565	108,674	41,270	34,759	1,966	56,149	10,162	144,306	132.79	—35,632	7,700	—43,332	15,768
Kansas City, Mexico & Orient of Texas	465	100,686	18,927	126,816	57,124	33,300	1,963	68,427	9,912	170,726	134.62	—43,909	6,250	—50,162	—2,050
Kansas City Southern	774	1,055,815	223,742	1,351,857	208,078	330,295	26,369	572,517	54,866	1,192,126	88.18	159,731	70,900	88,348	98,092
Lake Erie & Western	741	665,513	65,561	751,267	112,532	201,720	10,888	323,381	24,816	673,338	89.62	77,929	35,000	41,170	29,110
Lake Superior & Ishpeming	34	4,919	291	6,963	17,649	20,474	372	10,111	2,800	51,406	738.27	—44,443	4,939	—49,382	—7,328
Lehigh & New England	229	384,672	2,668	399,801	40,868	73,450	12,034	129,104	15,344	270,748	67.71	129,052	14,803	114,249	139,270
Lehigh Valley	1,435	4,711,746	500,981	5,613,533	634,544	1,449,673	52,407	2,911,171	111,408	5,179,637	92.27	433,896	176,000	257,832	344,647

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF MARCH, 1920—CONTINUED

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses						Operating ratio.	Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
		Freight.	Passenger.	Total (inc. misc.)	Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.					
Long Island	398	$580,176	$989,860	$1,745,818	$265,733	$437,543	$8.978	$1,080,255	$52,525	$1,856,113	106.31	—$110,295	$101,096	—$211,747	—$244,745
Lake Terminal	12	.....	280	101,382	7,861	27,856	.....	73,701	29	109,446	107.95	—8,065	6,048	—14,112	—6,668
Los Angeles & Salt Lake	1,168	1,121,871	396,352	1,640,203	186,474	261,286	17,414	504,885	36,880	1,051,218	64.09	588,985	79,293	509,403	263,126
Louisiana & Arkansas	302	308,873	52,377	378,349	70,134	49,742	4,432	123,406	9,013	255,390	67.50	122,959	18,078	104,823	134,943
Louisiana Railway & Navigation Co.	343	268,840	40,506	329,225	87,659	58,452	4,223	154,030	11,822	316,186	96.03	13,039	14,000	—961	30,814
Louisville & Nashville	5,040	6,484,168	1,887,974	9,275,447	1,345,348	2,637,410	150,050	4,064,326	215,528	8,463,917	91.25	811,531	336,964	473,038	—689,936
Louisville, Henderson & St. Louis	199	167,515	48,604	249,263	42,520	26,483	3,766	74,819	8,130	155,717	62.47	93,546	7,215	86,332	43,143
Maine Central	1,216	880,999	359,168	1,340,453	313,965	365,651	10,364	882,929	44,908	1,618,097	207.13	—277,645	95,742	—373,386	—172,983
Maryland, Delaware & Va.	82	60,485	22,440	87,229	7,785	38,900	538	59,262	2,702	109,187	124.17	—21,959	2,000	—23,959	16,936
Michigan Central	1,862	5,158,294	1,509,955	7,296,956	593,766	1,614,766	43,831	2,976,746	119,962	5,453,725	74.73	1,843,231	235.000	1,607,541	758,825
Mineral Range	101	42,984	330	45,499	10,113	16,971	256	28,660	1,098	57,098	125.41	—11,599	3,600	—15,199	—14,546
Minneapolis & St. Louis	1,646	897,443	243,901	1,204,628	135,638	334,651	16,845	613,802	38,590	1,140,210	94.65	64,418	56,711	7,601	27,686
Minneapolis, St. Paul & S. Ste. Marie	4,243	1,571,726	622,579	2,433,309	482,410	702,427	39,234	1,483,631	89,358	2,816,345	115.74	—383,036	253,873	—636,910	—656,373
Minnesota & International	194	77,836	32,352	117,010	8,870	15,856	457	57,572	3,892	86,649	74.05	30,360	5,851	24,509	21,158
Mississippi Central	164	67,685	19,270	91,071	21,926	23,961	1,971	35,973	12,364	96,196	105.62	—5,125	3,399	—8,524	—7,831
Missouri & North Arkansas	365	106,943	43,999	159,247	47,028	31,227	2,119	69,098	6,855	157,138	98.67	2,108	5,893	—3,842	50,352
Missouri, Kansas & Texas Railroad	1,715	2,080,646	416,728	2,686,642	500,393	706,299	29,228	989,478	108,163	2,350,761	87.49	335,881	112,294	223,222	158,373
Missouri, Kansas & Texas of Texas	1,739	1,378,839	564,360	2,107,049	414,656	466,212	20,019	1,103,493	80,256	2,108,593	100.06	—1.544	59,584	—61,167	—8,842
Missouri Pacific	7,299	6,060,373	1,253,284	8,008,851	1,750,854	1,914,005	129,097	3,476,347	255,988	7,577,481	94.61	431,370	476,139	—45,388	33,086
Mobile & Ohio	1,052	1,244,912	178,532	1,510,674	220,836	490,316	25,464	684,643	44,650	1,466,614	97.08	44,060	59,652	—15.592	199,829
Monongahela Connecting	7	.....	.....	263,136	27,262	45,430	585	117,156	6,566	197,000	74.86	66,135	3,016	63,119	68,159
Montour Railway	56	92,011	1,503	99,750	20,674	39,352	747	33,018	6,516	103,585	103.84	—3,835	2.179	—6.014	10,486
Nashville, Chattanooga & St. Louis	1,247	1,248,576	328,919	1,723,691	231,105	421,419	35,619	785,744	51,204	1,544,159	89.58	179,532	42,500	136,977	254,149
Nevada Northern	165	133,171	11,404	149,842	35,622	32,510	677	41,437	4,173	114,543	76.44	35,299	6,267	29,031	11,568
New Jersey & New York	47	15,245	85,373	105,654	8,257	18,387	343	71,107	2,303	100,396	95.02	5,258	1,927	3,329	11,506
New Orleans & N. E.	203	404,151	101,642	552,888	71,620	131,359	8,423	231,567	12,364	457,277	82.71	95,611	43,119	52,492	60,540
New Orleans Great Northern	284	172,420	42,686	224,877	39,441	42,207	3,410	86,921	10,139	182,526	81.16	42,351	12,031	30,320	36,040
New Orleans, Texas & Mexico	191	152,744	41,576	199,746	47,845	24,864	2,791	62,476	8,164	145,995	73.09	53,751	12,167	41,582	15,455
New York Central	6,069	12,569,102	6,828,753	22,831,133	2,393,923	5,912,736	214,480	13,185,614	678,628	22,802,827	99.88	28,306	820,415	—797,391	—2,211,752
New York, Chicago & St. Louis	574	2,202,960	75,890	2,346,256	211,678	437,113	29,304	898,201	64,616	1,645,301	70.12	700,955	25.000	675,949	179.029
New York, New Haven & Hartford	1,965	4,065,799	3,709,104	9,092,874	1,309,395	2,240,220	37,520	4,897,733	312,927	8,969,266	98.64	123,609	337,000	—214,653	—300,883
New York, Susquehanna & Western	135	258,646	68,120	362,592	30,482	48,030	1,134	265,703	8,383	353,731	97.44	8,862	18,674	—9,814	59,826
Newburgh & South Shore	7	.....	.....	151,829	14,517	33,304	.....	93,373	4,397	145,590	95.89	6,239	7,783	—1,544	31,913
Norfolk & Western	2,202	3,775,448	667,719	4,804,575	1,064,815	2,262,653	34,003	2,487,887	155,272	6,032,642	125.56	—1,228,067	425,000	—1,653,396	—2,526,797
Northern Pacific	6,655	5,995,606	1,533,139	8,247,856	1,569,726	2,117,320	75,189	3,503,502	227.004	7,603,460	92.18	644,396	730,082	—86,230	—863,148
Northwestern Pacific	538	272,097	167,954	496,390	102,946	71,959	4,077	229,775	14,665	426,021	85.82	70,369	25,591	44,766	92,637
Northern Alabama	10	104,253	13,521	119,974	16,187	7,020	1,311	55,415	1,613	81,547	67.97	38,426	4,580	33,846	40,851
Panhandle & Santa Fe	772	483,884	132,655	651,809	199,819	244,813	2,873	284,381	15,606	727,492	111.61	—75,683	20,435	—96,028	30,418
Peoria & Pekin Union	19	22,932	4,629	133,418	13,217	29,592	86	88,444	5,309	136,647	102.42	—3,229	9,500	—12,729	35,290
Perkiomen	41	74,288	9,175	87,304	8,180	4,355	17	37,292	233	50,087	57.37	37,216	3,276	33,940	7,364
Philadelphia & Reading	1,126	6,068,515	737,343	7,173,090	630,176	1,944,928	50,609	3,557,962	160,037	6,361,854	88.69	811,236	209,584	601,222	1,718,219
Philadelphia, Bethlehem & N. R.	71	.....	.....	80,664	12,161	15,835	415	75,528	2,220	106.158	131.60	—25,495	1,020	—26,525	—28,097
Pittsburgh & West Virginia	63	108,981	9,626	135,205	29,280	39,238	1,143	59,641	9,062	144,530	106.89	—9,325	13,951	—232,277	38,579
Pittsburgh & Shawmut	103	140,875	5,755	147,450	26,029	27,468	1,405	53,500	6,074	114,475	77.63	32,974	123	32,851	74,432
Port Reading	21	142,036	.....	205,221	15,429	8,676	18	95,365	5,050	124,537	60.68	80,684	12,007	68,677	39,340
Richmond, Fred. & Potomac	116	460,334	340,267	916,892	78,255	153,661	4,164	357,952	23,553	617,599	67.35	299,294	31,050	268,243	—133,209
Rutland	415	199,031	94,265	359,414	78,994	99,030	4,323	253,252	12,873	450,028	125,21	—90,614	21,121	—111,735	—105,607
St. Joseph & Grand Island	258	205,410	41,797	260,984	60,516	47,682	1,836	136,560	12,374	253.969	97.31	7,014	11,889	—4,874	42,092
St. Louis, Brownsville & Mexico	548	413,995	171,368	617,180	126,956	78,837	7,586	194,951	24,183	432,115	70.01	185,066	12,300	172.629	55.847
St. Louis-San Francisco	4,761	5,035,641	1,822,246	7,262,462	969,787	1,507,809	50,339	2,798,484	205,040	5,527,387	76.11	1,735,076	225,277	1,509,376	784,831
St. Louis, San Francisco & Texas	134	107.650	18,209	135,799	22,301	23,611	1,410	79,198	5,493	132,015	97,20	37,851	1,880	1.906	12,326
San Antonio & Aransas Pass	736	229,981	83,073	338,776	99,187	87,463	6,152	156,367	19,338	368,502	108.77	—29,727	15,000	—44,727	82,345
Seaboard Air Line	3,563	2,859,722	860,816	4,111,950	646,395	1,001,115	73,794	2,084,935	126,092	3,995,363	97.16	116,587	150,000	—33,548	—315,372
South Buffalo	11	56,487	.....	121,082	6,294	17,111	453	79,463	1,906	105,226	86.90	15,856	—3,580	12,276	22,637
Southern	6,972	8,311,706	2,583,934	11,879,410	1,339,382	2,460,652	132,154	5,231,302	306,068	9,671,017	80.57	2,308,393	401,921	1,906,472	1,731,960
Southern Ry. in Mississippi	278	97,245	47,176	156,567	45,183	28,525	2,069	83,021	4,720	163,517	104.43	—6,951	9,800	—16,751	13,837
Spokane & International	156	89,971	17,666	112,088	15,787	11,372	2,441	38,988	5,069	73.480	65.55	38,608	5,170	33,421	25,437
Spokane, Portland & Seattle	338	447,015	142,227	633,021	90,789	83,687	4,968	217,345	22,299	424,324	67.02	208,697	75,003	133,695	35,712
Staten Island Rapid Transit	23	100,743	78,115	191,788	25,656	41,570	1,231	97,312	9,691	175,459	91.48	16,330	15,000	1,329	24,309
Tennessee Central	292	165,506	44,242	222,780	30,697	43,826	3,349	102,167	13,980	194,018	87.08	28,762	5,687	23,075	63,919
Texas & Fort Smith	87	70,349	22,789	106,853	14,497	21,718	1,307	44,055	5,873	87,303	81.70	19,550	15,360	4,190	222
Texas & Pacific	1,946	1,876,993	1,019,447	3,115,811	620,881	710,814	36,431	1,349,454	89,298	2,849,319	91.44	266,492	120,800	145,558	181,731
Toledo & Ohio Central	503	706,111	57,271	796,324	80,289	253,558	4,481	375,981	17,620	734,906	92.28	61,419	37,919	23,499	32,209
Toledo, Peoria & Western	247	92,780	53,791	155,866	18,829	14,982	1,788	68,163	9,373	113,133	72.58	42,733	8,500	34,233	65,054
Toledo, St. Louis & Western	454	711,532	30,168	793,922	113,375	139,494	8,917	330,391	12,604	604,729	76,17	189,193	31,000	158,193	110,902
Trinity & Brazos Valley	368	149,427	18,672	174,174	87,739	32,955	681	61,793	9,026	192,194	110.34	—18,021	7,209	—25,229	43,124
Ulster & Delaware	128	40,968	15,496	80,626	17,190	20,326	2,015	57,968	8,596	106,665	132.29	—26,039	5,000	—31,039	—2,634
Union R. R. of Pennsylvania	40	.....	.....	669,333	80,159	188,031	310	448,768	7,778	725,046	108.32	—55,713	7,728	—63,441	—193,546
Union Pacific	3,614	6,732,769	1,574,382	9,167,611	1,068,742	1,639,578	68,453	2,792,796	294,824	6,082,487	66.35	3,085,123	437,434	2,646,610	703,867
Utah	98	151,419	625	152,369	15,642	28,433	174	34,839	2,754	81,841	53.71	70,527	5,066	65,461	33,336

The **Traffic Club** of Chicago, at a business meeting held on May 13, drafted a petition to Congress asking that legislation be enacted making it unlawful for two or more employees of any common carrier engaged in interstate commerce, to enter into an agreement to hinder the operation of any transportation facilities. It was also resolved that a similar petition be made to the legislatures of the several states, urging them to enact similar legislation. The club approved the Kellogg Bill, in the United States Senate, permitting railroad companies to own and operate steamship lines on the Great Lakes.

A daring robbery of the mail coach of the northbound New Orleans Limited of the Illinois Central at Kankakee, was made by a lone bandit early on the morning of May 14. The man was later apprehended in Chicago and after a revolver battle in which he succeeded in killing one policeman, he himself was shot to death. A large amount of the stolen money, all in gold and currency, was recovered. The robber, who at one time was a postal employee, boarded the train at Gilman, Ill., taking a seat in one of the forward Pullmans. As the train left Kankakee he proceeded to the mail coach. He remained in the mail coach until the train stopped at the 63rd St. station, Chicago, when he dropped off. One of the mail clerks notified the police of the robbery, but two policemen meeting the robber on the street had already apprehended him, and within a half hour he was cornered and was killed in a struggle with police officers. An investigation is being made to connect this man with other recent robberies of this character.

Safety-First on the Chicago & North Western

F. Walters, general manager of the Chicago & North Western, has reissued the circular, promulgated last year, reminding trainmen and enginemen of the importance of special care in approaching highway crossings where automobiles are liable to approach without observing due precautions.

The circular prescribes the "nine-second" whistle signal as indicated by the lines below:

The first two lines indicate a space of two seconds each; and the other lines, and the spaces between lines, indicate one second each.

Pictures are shown in the circular to emphasize the point that people in automobiles, moving in the same general direction as an approaching train, will sometimes run on to a crossing without raising their side curtains; and to illustrate how a party in a large car will continue in animated conversation, with faces turned away from the railroad. Every engineman is exhorted to take the same precautions that he would if he knew that his own wife or children occupied the endangered automobile.

American Association of Engineers

At the annual convention of the American Association of Engineers, held in St. Louis on May 10 and 11, the following officers were elected for the ensuing year: President, L. K. Sherman, president of the U. S. Housing Corporation, Washington, D. C.; vice-presidents, H. O. Garman, chief engineer, Public Service Commission of Indiana, Indianapolis, Ind., and A. B. McDaniel, principal engineer, construction division, U. S. Army, Washington, D. C.; directors, Edmund T. Perkins, consulting drainage engineer, Chicago; Charles A. Finley, managing engineer, water bureau, Pittsburgh, Pa.; W. C. Bolin, assistant engineer, Baltimore & Ohio, Chicago; B. A. Bertenshaw, valuation engineer, Big Four, Cincinnati, O.; Frederick Bass, professor, University of Minnesota, Minneapolis, Minn., and R. W. Barnes, principal assistant engineer Southern Pacific, Portland, Ore. Retiring president, F. H. Newell, head of the department of civil engineering, University of Illinois, becomes a member of the board of directors automatically. The following directors also hold over another year: Raymond Burnham, consulting engineer, Chicago; E. F. Collins, civil engineer, St. Louis, Mo.; P. E. Harroun, consulting engineer, San Francisco, Cal.; A. A. Matthews, chief engineer, St. Louis Southwestern, St. Louis, Mo., and F. D. Richards, consulting engineer, Cleveland, Ohio.

Results of the A. S. C. E. Questionnaires

Of the nine questions submitted to the members of the American Society of Civil Engineers only two questions, A-3 and B-7, received a negative vote, failing by a vote of 87 and 275, respectively. Question A-3 related to the formation of a large organization of all engineering societies to handle other than techincal matters, the other related to a second increase of non-resident dues, in addition to the increase provided for in question B-6, should the activities brought about by the movement to expand both the internal and external work of the society call for additional funds. The remainder of the questions—those dealing with the development and expansion of the society, co-operation with other societies, the election of directors, the abolishment of a nominating committee, the allotting of dues to local sections and the increase of non-resident dues to provide for greater activities received a favorable vote.

Mechanical Engineers' Meeting

The Spring meeting of the American Society of Mechanical Engineers will be held at St. Louis, Mo., on May 24, 25, 26 and 27. Special trains (or cars) are to be run so that members from the east and north can visit Keokuk, Iowa, on Sunday, the 23d, and Tulsa, Okla., after the meeting.

Headquarters willl be at the Hotel Statler, and the first general meeting for discussion will be on Monday afternoon, with papers on valuation methods, by D. H. Ray, J. R. Bibbins, H. C. Anderson and Cecil Elmes; also a paper contributed by Dr. M. E. Cooley, containing data collected by the late F. B. H. Paine.

Railroad men will be interested also in papers to be read on Tuesday; by William S. Mitchell on River Barges and Terminals; by E. W. Schadek on Mississippi River Transportation; and by C. B. Lord on Tight-Fitting Threads for Bolts and Nuts. On Wednesday morning there will be a session devoted to foundry practice, with papers by Richard Moldenke, Enrique Touceda, John H. Hall, Zay Jeffries and Charles Pack. On Thursday morning there will be a session devoted to power and combustion, with papers by Otis L. McIntyre and Thos. C. McBride.

Between the sessions visits will be made to various industries in and around St. Louis.

Frisco Asks Injunction Against Missouri Tax Law

The St. Louis-San Francisco has instituted injunction proceedings against the state treasurer and the attorney general of Missouri to enjoin the enforcement of the 1917 Missouri Franchise Tax Law. A hearing was held on April 29, before Judge Van Valkenburgh at Kansas City, Mo., on the application for a preliminary injunction. However, no decision was reached. The decisions in this case will undoubtedly have a far-reaching effect on the taxation of corporations, inasmuch as the case hinges upon the definition of the term "surplus" upon which the franchise tax is based.

In outlining the case, E. T. Miller, general attorney of the Frisco, said, in part:

"The Legislature of Missouri in 1917 passed a Franchise Tax Act providing for the assessment of a franchise tax equal to three-fortieths of one per cent on the par value of the outstanding capital stock and surplus of corporations doing business in Missouri. In 1918 the State Tax Commission followed the clear language of the law in assessing the tax and considered "surplus" as the excess of assets over liabilities. When the new Commission came into office in 1919 it found a formula (agreed to, possibly by the old commission) under which "surplus" was to be considered as excess of gross assets over the par value of the outstanding capital stock. In other words, the total gross value of all assets less the par value of the outstanding capital stock was taxable as "surplus" under the act without considering or deducting liabilities. The Tax Commission in 1920 followed this formula in assessing the taxes.

"The Marquette Hotel Investment Company, a Missouri corporation, employing all of its capital stock in business in this state,

was granted a writ of certiorari by the Supreme Court of Missouri to the State Tax Commission, and on hearing in the Supreme Court the definition of "surplus" given by the Tax Commission was approved. Motion for rehearing was filed by the hotel company and is still pending. The St. Louis Clearing House, The Missouri State Bankers' Association, the St. Louis Chamber of Commerce and organizations at Kansas City, have filed briefs in support of this motion. The sole question involved and determined in the hotel case was as to the definition of the term "surplus" used in the act. The facts in that case are as follows: The hotel company reported to the Tax Commission that the par value of its outstanding capital stock was $350,000; its assets were $708,770.90; its outstanding indebtedness to creditors was $350,000; its capital stock liability was $350,000; and its surplus was $8,770.90. It contended that the par value of its outstanding capital stock and surplus was $358,770.90. The Tax Commission found that the par value of its outstanding capital stock and surplus was $708,770.90.

"The St. Louis-San Francisco instituted proceedings by injunction against the state treasurer and the attorney general in the United States District Court for the Western District of Missouri to enjoin the collection of the franchise tax assessed against it for the year 1919. The amount of the tax determined by the Commission was approximately $92,000. The railway company contended that on a proper basis, the report showing that it had no surplus, the tax would be approximately $16,000 computed only on the par value of its outstanding capital stock employed in Missouri.

"In the latter proceeding the act is attacked as violating the Federal Constitution, particularly the Fourteenth Amendment, the Commerce Clause and the clause relating to the impairment of contracts. It was also attacked as violating various provisions of the Missouri Constitution, particularly those relating to uniformity of taxation, those prohibiting the legislature from exempting persons other than those specifically enumerated, and those prohibiting discrimination.

"It further contended that if the act was constitutional, yet it was improperly administered by the Tax Commission in that its definition of "Surplus" was erroneous, and because the plaintiff was discriminated against in favor of other corporations in the same class. Another contention is that under Sections 11551 and 11552 of the Missouri Statutes, 1909, provision was made for the taxation of all franchises of railroad corporations other than the right to be a corporation, and that the plaintiff had paid its taxes, including taxation on its franchises for the year 1919."

Valuation Conference in Chicago

A meeting of valuation engineers of the railways, with representatives of the Division of Valuation of the Interstate Commerce Commission, was held at Chicago on April 29 and 30, the meetings being open to the representatives of all railroads and about 225 being in attendance. The meeting was called for the exchange of views as to the character and sufficiency of the work done by the Bureau of Valuation, in the preparation of cost of reproduction inventories, in estimating the value of lands, in preparation of investment statements, and for an exchange of views generally as to the progress of the work and the methods employed. It was clear from the statements made that while there were differences in some cases upon the question of quantities, as a rule the work had been well done in the ascertainment thereof, but that vital differences generally exist in the determination of the cost of grading, the elimination of grade crossings, and track laying and surfacing. Exceptions were also taken to the amounts allowed for general expenditures and interest during construction. The greatest difference in the land values was found in the cities and suburban districts, and in connection with the valuation of water front property.

The work of the accountants of the Bureau of Valuation in the preparation of their statement of the investment of each railroad company, seemed to have been principally a process of elimination of items that would not be included under present accounting rules, such as unamortized discounts on securities issued prior to 1907, without including amounts which would naturally be an offset thereto, such as interest during construction, etc. Arrangements were made for early meetings of the Engineering and Land committees, and the Committee on Preparation of Financial Histories and Accounts, to give consideration to the matters which the developments of the meetings indicated should have further attention.

Traffic News

The Atlanta, Birmingham & Atlantic announces the establishment of a regular sleeping car between Birmingham, Ala., and Brunswick, Ga.

The Kansas City Southern has filed an intervening complaint in the proceedings brought by the Pullman Company before the Public Service Commission of Missouri, to secure an increase in rates for Pullman accommodations. The Interstate Commerce Commission has authorized an increase from $1.50 to $2 in the Pullman sleeping car rates between Kansas City, Mo., and Joplin. This rate applies on the Kansas City Southern since traffic over its line between those points constitutes an interstate trip. Movement on the Missouri Pacific between Kansas City and Joplin is intrastate and since the Public Service Commission of Missouri has not yet authorized an increase in the sleeping car rates between points in Missouri, the Pullman Company is still charging $1.50 to passengers on the Missouri Pacific between those points and $2 on the Kansas City Southern. The complaint of the Kansas City Southern sets forth these facts and alleges that it is being discriminated against. It asks that the intrastate rate should be increased to $2, the same as the interstate rate.

Coal Production

The total output of soft coal during the week ended May 8, including lignite and coal coked, is estimated at 9,069,000 net tons, according to the weekly bulletin of the United States Geological Survey. This was an increase over the preceding week of 173,000 tons, or 2 per cent. In spite of the increase, production was still 1,946,000 tons short of that of the last normal week, March 22-27, and amounted to only 86 per cent of the average during the first quarter of the year. The cause of the depression was the persistence of the railroad workers' strike, which continued greatly to hamper the movement of freight through rail gateways and junction points from Kansas City and St. Louis to Buffalo and New York. Incomplete reports from the principal carriers show little improvement during the week of May 10-15.

Production during the first 110 working days of the last four years has been as follows:

1917	192,657,000	1919	149,979,000
1918	195,398,000	1920	184,153,000

The year 1920 is thus 34 million tons ahead of 1919, but is 8½ million behind 1917 and 11¼ million behind 1918.

"The shadow of the switchmen's strike was the outstanding feature of the week ended May 1," says the bulletin. "The car shortage which the strike has precipitated is the most acute in recent years and little improvement was shown during the week of the first. The lack of empties at the mines far outweighed all other causes of lost time. No market, for example, was reported from only three mines east of the Mississippi and all in Illinois. Although lack of demand was reported from many of the trans-Mississippi fields, only in Texas, Arkansas and Oklahoma was it the dominant factor limiting production. The average for the country showed a market value loss of 0.7 per cent.

"In comparison with the car shortage, all the other causes of loss were insignificant. Complete returns are expected to show that over the country as a whole the mines were closed down for that reason from 45 to 47 per cent of full time; that is, about 22 hours out of the 48. The cause of the acute shortage was the yard and switchmen's strike. The strike continued to hamper to varying degrees of severity, movement through most of the principal gateways and junction points east of the Mississippi and north of the Ohio and Potomac.

"The yards at Kansas City, St. Louis, Chicago, Columbus, Cincinnati, Cleveland, Toledo, Pittsburgh, Buffalo and New York were partially paralyzed."

Commission and Court News

Interstate Commerce Commission

Certificate of Necessity Not Required

The Commission has issued a conference ruling that paragraph 18 of Section 1 of the interstate commerce act, as amended by Section 402 of the transportation act, 1920, does not include ordinary spur, industrial, team, switching or side tracks of an existing line of railroad. Such a track is not regarded as constituting in itself an extension of the existing line, or a new line, within the meaning of that section, and, where not forming part of a proposed extension or new line, in respect of which certificate of public convenience and necessity must be obtained from the commission under that section, may be constructed, changed or abandoned by the carrier without such certificate.

No Special Rate for Metal Containers Returned

The Interstate Commerce Commission, in its decision on case No. 10,048, Pneumatic Scales Corporation vs. the railroads, has reaffirmed its former decision in the same case (51 I. C. C., 686), refusing to grant the concessions asked for by complainant. Request was made for a nallowance of weight on goods shipped in metal boxes, and for half fourth-class rates on returned containers, knocked down. Complainant holds patents on its steel container and the railroads contended that the tariff specifications asked for would permit the use of only the patented article; but complainant denies this. The claims that the container would reduce losses from breakage and thefts, and would facilitate economical loading of cars, are declared by the commission to be too speculative to warrant a decision reducing the compensation of the carrier.

State Commissions

The members of the New Jersey State Board of Public Utility Commissioners have sent to the governor of the state an answer to charges of inefficiency recently filed with the governor by the mayor and aldermen of Jersey City. It is a pamphlet of 25 pages.

The Southern Pacific, the Tidewater Railroad Company and the Cement Tolenas, are made defendants in an action filed with the Railroad Commission of the state of California by the Pacific Portland Cement Company, on May 12. Complaint is made of the rates charged for transporting lime rock. These rates were fixed by the United States government during federal control and are claimed to be a violation of the Public Utilities Act of California in that they were not fixed by the State Railroad Commission. The cement company asks for a readjustment and for reparation.

United States Supreme Court

The United States Supreme Court on May 17 reversed the decision of the district court for the southern district of New York in the bill of lading case, thereby dismissing the petition of railroads and steamship companies for a decree to set aside the order of the Interstate Commerce Commission prescribing the terms and forms of bills of lading; but the court explained that this action was taken because the Transportation act of 1920 gives the commission such authority over bills of lading as to render the case in question a moot case.

A BILL to permit American coastwise vessels to use the Panama Canal free of tolls has been introduced in the Senate by Senator Borah, of Idaho.

Foreign Railway News

A press despatch from Wellington says that the New Zealand government is about to place an order for rolling stock to the value of £1,750,000 ($8,750,000).

In answer to an inquiry, the Minister of Transport has stated in Parliament that the approximate number of railway freight wagons of all kinds in Great Britain is 1,354,000, of which no less than 628,000 are privately-owned.

W. Howard Williams, heretofore assistant general manager of the London & North Western, has been appointed general manager of the Central Argentine railway. Mr. Williams entered the service of the London & North Western in 1897. He was for several years assistant district goods manager at Wolverhampton and Liverpool. In 1913, he was transferred to the general manager's department at London to take charge of the work connected with the company's conciliation boards. In 1915 he was appointed mineral traffic manager, and four years later became assistant general manager. During the war he held the position of director of Inland Transport at the Ministry of Munitions.

The general strike, in France, appears to have failed, as far as the railroads are concerned, a large percentage of the train employees having returned to work at the beginning of this week; although the situation on the docks at important ports, as well as in the coal mining districts, continues uncertain.

Four French railroads announce that they will dismiss the men from their large shops and will have car and locomotive repairs done by contract. This is the gist of a cable despatch of May 17. The four roads are the State, the Orleans, the Paris, Lyons & Mediterranean and the Southern. The reason given for this action is that the shops were hotbeds of radicalism and their output was low. Ten thousand men will be released. Repairs will be done by private corporations able to discharge unwilling workers. The railroads are restricted by law in dealing with their employees.

Sad Plight of Austria's Railways

The following brief article sent to the *Railway Age* by an officer of the Austrian State Railways gives rather a melancholy picture of what was formerly the important railway system of Austria.

The Austrian-Hungarian monarchy has ceased to exist.

Locomotives Out of Commission Which the Austrians Cannot Repair for Lack of Materials

Austria was a state with 20,000,000 inhabitants. The republic of the same name which remains, is a little state of only 6,000,000 inhabitants. A similar fate has overcome the Austrian railways. The Austrian railways which approximated 13,000 miles before the war are now reduced to only 4,000

miles. Formerly 10.800 were in the possession of the state of Austria, while now there remain only 2,600 miles, one-fourth of the former system. Formerly the Austrian railways were in connection with the railways of six neighboring states: Italy, Switzerland, Germany, Hungary, Russia and Rumania. Now the Austrian railways are no more in connection with Russia and Rumania. Instead of these fertile countries they are in connection with the railways of Czecho-Slovakia and Jugoslavia, only parts of the old Austrian monarchy.

The effects of the war have particularly hit Vienna the capital of the Austrian empire, a city with nearly 2,000,000 inhabitants. As this town was situated in the centre of the Austro-Hungarian monarchy, railways radiated in all directions of the compass. Now there is only one line, the line from Vienna to Switzerland, which has its former extent (360 miles) and importance. All the other lines, especially those leading to the north are remnants of less than a hundred miles, because there the boundaries of the new states begin.

The railways of Austria are now in a bad condition in every respect. The rolling-stock, principally the locomotives and the freight cars are worn out by use during the war. Their number is diminished. There is a want of all repair materials, as for example copper and glass. But the lack of coal effects the greatest damage. In Austria there are very few coal pits. She depends entirely on her neighboring states, especially on Czecho-Slovakia, which however, has not enough coal for its own industry. Therefore Austria has the greatest difficulty in maintaining its railway traffic. From time to time all passenger traffic must be stopped, in order to carry on the traffic of the most important freight, such as food. For half a year passenger traffic has had to be stopped on each Sunday to save coal. This condition of the railways combined with the need of food and lack of coal for industry and household necessities and the low value of the Austrian paper-crown, practically effect a blockade of the country, which in many respects is harder than the blockade during the war.

Exports of Cars in March

The Department of Commerce reports eight passenger cars and 1,649 freight cars exported from the United States in the month of March, the whole valued at $2,593,005. The detailed figures, as compiled by the Division of Statistics, are as follows:

EXPORTS OF CARS FROM THE UNITED STATES MARCH, 1920

	Passenger		Freight and other		For other railways		
Countries	Number	Dollars	Number	Dollars	Number	Dollars	Parts of cars. Dollars
France	..	.....	725	1,755,820	250	24,951	380,875
Italy	..	.....	....	.....	....	.....	113,038
Norway	..	.....	....	.....	....	.....	2,625
England	..	.....	....	.....	6	6,582	7,292
British Honduras	..	.....	1	825	....	.....	.....
Canada	2	13,000	33	59,441	7	37,410	61,520
Guatemala	..	.....	....	.....	....	.....	273
Honduras	..	.....	....	.....	1	83	.....
Nicaragua	..	.....	....	.....	3	2,399	.....
Panama	..	.....	....	.....	....	.....	1,489
Mexico	..	.....	34	9,685	68	8,450	41,472
Newfoundland and Labrador	..	.....	....	.....	....	.....	1,318
Barbados	..	.....	....	.....	....	.....	795
Jamaica	..	.....	....	.....	13	24,884	.....
Trinidad and Tobago	..	.....	....	.....	....	.....	295
Other British West Indies	..	.....	....	.....	....	.....	835
Cuba	6	90,474	481	562,036	194	232,951	136,546
Virgin Islands of U. S.	..	.....	....	.....	....	.....	50
French West Indies	..	.....	7	9,632	....	.....	.....
Haiti	..	.....	....	.....	....	.....	20,111
Dominican Republic	..	.....	....	.....	144	90,913	5,103
Argentina	..	.....	....	.....	100	13,500	.....
Bolivia	..	.....	....	.....	....	.....	1,440
Brazil	..	.....	154	16,900	5	10,680	29,743
Chile	..	.....	....	.....	....	.....	12,448
Colombia	..	.....	5	5,300	....	.....	3,386
Ecuador	..	.....	....	.....	....	.....	8,092
British Guiana	..	.....	10	42,406	1	836	31,901
Peru	..	.....	2	1,230	70	15,466	8,693
Venezuela	..	.....	....	.....	....	.....	133
China	..	.....	....	.....	....	.....	3,280
Japanese China	..	.....	....	.....	....	.....	1,700
British India	..	.....	....	.....	....	.....	15,145
Hongkong	..	.....	....	.....	....	.....	71,840
Japan	..	.....	....	.....	....	.....	216,816
Philippine Islands	..	.....	197	26,256	68	12,461	6,131
British West Africa	..	.....	....	.....	....	.....	620
British South Africa	..	.....	....	.....	....	.....	122
Total	8	103,474	1,649	2,489,531	930	481,566	1,185,127

Equipment and Supplies

Locomotives

THE FUJI MINOBU (Japan) has ordered two 4-6-0 type locomotives from the Baldwin Locomotive Works.

THE KIPAWA COMPANY, Mattawa, Ont., has ordered one four-wheel switching locomotive from the American Locomotive Company. This locomotive will have 14 by 22 in. cylinders and a total weight in working order of 79,000 lb.

THE U. S. FERRO ALLOYS CORPORATION, New York, has ordered one four-wheel switching locomotive from the American Locomotive Company. This locomotive will have 14 by 22 in. cylinders and a total weight in working order of 79,000 lb.

THE RICHMOND, FREDERICKSBURG & POTOMAC has ordered 2 Pacific type locomotives from the American Locomotive Company. These locomotives will have 26 by 28 in. cylinders, and a total weight in working order of 287,000 lb. This was incorrectly reported in our issue of April 23, as 8 locomotives.

Freight Cars

THE HUMBLE OIL & REFINING COMPANY, Houston, Tex., is inquiring for 300 tank cars.

THE UNITED VERDE COPPER COMPANY, New York, is inquiring for 50 ore cars of 75 tons capacity.

THE BALTIMORE & OHIO will have repairs made to 300 refrigerator cars, 2,000 box cars and 1,000 composite gondola cars.

THE CANADIAN NATIONAL has ordered 50 express refrigerator cars of 30 ton capacity from the National Steel Car Corporation, Ltd.

THE NEW JERSEY ZINC COMPANY, New York, has ordered 10 general service cars of 50 tons' capacity from the Pressed Steel Car Company.

THE INTERNATIONAL PETROLEUM COMPANY, 26 Broadway, New York, is inquiring for 10 tank cars of 10,000 gal. capacity, for export to Peru.

THE FRANKLIN QUALITY REFINING COMPANY, Franklin, Pa., has ordered ten 8,050-gal. capacity tank cars from the Pennsylvania Tank Car Company.

THE UNION GAS AND ELECTRIC COMPANY, Cincinnati, Ohio, has ordered 100 55-ton self-clearing hopper cars from the Pressed Steel Car Company, Pittsburgh, Pa.

THE CHICAGO & NORTH WESTERN, reported in the *Railway Age* of April 23 as inquiring for 500 50-ton ore cars, has ordered this equipment from the Pullman Company.

THE ACAR MANUFACTURING CORPORATION, 30 Church street, New York, has ordered seventeen 10,100-gal. capacity tank cars from the Pennsylvania Tank Car Company.

THE SOUTHERN PACIFIC has ordered 250 ballast cars from the Mt. Vernon Car & Manufacturing Company and 500 automobile cars from the Standard Steel Car Company.

THOMAS F. CAREY, 120 Liberty street, New York, is in the market for second-hand equipment as follows: 250 box cars and 250 flat cars of 30 tons capacity; also for 250 box cars and 250 flat cars of 40 tons capacity.

Passenger Cars

THE CANADIAN PACIFIC is in the market for five mail cars.

THE ATLANTIC COAST LINE has ordered 25 passenger cars from the Pullman Company.

Supply Trade News

W. G. Cook, manager of the Chicago office of the **Garlock Packing Company,** Palmyra, N. Y., has been transferred and is now manager of its Philadelphia, Pa., office.

F. R. Ryan, sales engineer of the **Roller-Smith Company,** New York, has been appointed district manager of its Chicago office, with headquarters at 739 Monadnock block.

The Page Steel & Wire Company, has removed its offices from 30 Church street, to the offices of the **American Chain Company,** with whom it has been consolidated, Grand Central Terminal, New York.

The **R. W. Young Manufacturing Company,** electric turntable tractors, electric hoists and cranes, announces its removal from 80 East Jackson boulevard, to the Harris Trust building, 111 West Monroe street, Chicago.

The Yale & Towne Manufacturing Company has removed its general offices from New York to Stamford, Conn. The company maintains an office in New York City, but all communications should be sent to Stamford.

The name of the **Madden Company** has been changed to **Maintenance Equipment Company.** The organization and character of business remains the same as before and the headquarters will continue in the Railway Exchange Building, Chicago.

The Union Railway Equipment Company, Chicago, has purchased a tract of land at Hammond, Ind., and is now erecting shops for the manufacture of its railroad freight car specialties. When completed the plant will total an investment of approximately $1,500,000.

The Rome Iron Mills, Inc., New York, manufacturer of solid and hollow locomotive staybolt and engine bolt iron, announces the appointment of **A. M. Castle & Company** as its western representative. Castle & Company have offices in the principal western cities, with warehouses at Chicago and Seattle.

K-G Welding & Cutting Company, 556 West Thirty-fourth street, New York, manufacturers of welding and cutting apparatus, has opened a sales office in order to accommodate its western trade, at 12 and 14 East Harrison street, Chicago, where a complete line of welding and cutting apparatus will be carried. **William McCarthy,** who has been in charge of the railroad service department, has been appointed western sales manager.

Paul Kircher, formerly resident manager of the eastern territory at New York, for the **Massey Concrete Products Corporation,** Chicago, has been made resident manager, with headquarters in Chicago, in charge of sales of the reinforced concrete poles which this company makes by the centrifugal process. Mr. Kircher will continue to serve as resident manager also of the **Canadian Concrete Products Corporation, Ltd.**

DeWitt V. D. Reiley, vice-president of the **Davis-Bournville Company,** Jersey City, N. J., has been elected president, succeeding **Augustine Davis,** who resigned last November. **Charles B. Wortham,** treasurer of the company since its organization, was selected vice-president and **William G. McCune** secretary and treasurer. The directors include the above officers and **Augustine Davis, Charles J. Mayer, Daniel E. Evarts** and **H. Rowntree.**

Frank A. DeWolff, assistant locomotive superintendent of the **Cuban Central,** has joined the forces of the **International Railway Supply Company,** 30 Church street, New York, as its traveling representative. Mr. DeWolff has been engaged in active railroad work for the past 22 years, having begun as a machinist's apprentice in Mexico. He subsequently served as machinist, power house engineer, locomotive fireman, engineman and superintendent of shops. From July, 1916, to January, 1919, he was general master mechanic on the Cuban Central and from the latter date was assistant locomotive superintendent in charge of the locomotive and car departments of the same roads.

Frank P. Roesch, whose appointment as western manager of the **Standard Stoker Company, Inc.,** New York, was announced in the *Railway Age* of April 30, will have charge of the Chicago office of the company, which was recently opened at 1549 McCormick building, for the purpose of handling the newly developed Du Pont type locomotive stoker. Mr. Roesch was during federal control connected with the United States Railroad Administration as regional fuel supervisor for the northwestern region, with headquarters at Chicago, and prior to that was employed as master mechanic on the El Paso & Southwestern, the Southern, and the Chicago & Alton. Mr. Roesch is a member of the American Society of Mechanical Engineers and several of the prominent mechanical department associations.

F. R. Roesch

Obituary

G. E. Lemmerich, railroad layout engineer for the Austin Company, Cleveland, Ohio, died on April 25, of heart failure.

Trade Publications

TRUCTRACTOR.—The Clark Tructractor Company, Chicago, has issued a pamphlet showing photographs and specifications of all models of the Clark Tructractor, with illustrations showing it at work in various industrial plants.

TOOL STEEL.—A brief discussion of the question whether chemical analyses are of greater importance in the quality of tool steel than its careful manufacture in all processes, is printed in a pamphlet of eight pages published by the Vanadium-Alloys Steel Company, Pittsburgh, Pa.

FORMS FOR ROADS AND STREETS.—The Blaw-Knox Company, Pittsburgh, Pa., has issued a bulletin of 44 pages, describing and illustrating metal forms used in paving and sidewalk construction. While a large part of this bulletin is devoted to concrete highways some of the forms described for concrete walks and curbs are also applicable to railway platform construction.

MACHINE GUARD HANDBOOK.—A handbook dealing with the subject of machine guards has been compiled for the Consolidated Expanded Metal Companies, Braddock, Pa., and is being issued by that company. It is designed for the use of managers, purchasing agents and guard makers and contains information regarding the requirements of practical guards and how to obtain suitable guards for any purpose.

HAMMERS.—A Captain of Industry is the title of a booklet published by the David Maydole Hammer Company, Norwich, N. Y. It contains a brief story of the life of David Maydole, the inventor of the adz-eye hammer, written by James Parton. In addition it includes a catalogue of the principal varieties of hammers made by the company and an amount of useful information for mechanics, which has been compiled mostly in tabular form, showing the weights and specific gravity of materials of various kinds, speeds of wheels and drills, rules for calculating measurements, etc.

ANNUAL REPORTS

Chicago and North Western Railway Company—Sixtieth Annual Report

REPORT OF THE BOARD OF DIRECTORS.

To the Stockholders of the Chicago and North Western Railway Company:

The Board of Directors submits herewith its report of the affairs of the Chicago and Northwestern Railway Company for the year ending December 31, 1919.

As the operation of your property continued throughout the year 1919 under the control and direction of the United States Railroad Administration, the transactions recorded in this report are those of the corporation and do not include transactions incident to the physical operation of the property.

The Income Account of the Chicago and Northwestern Railway Company for the years ending December 31, 1918 and 1919, was as follows:

	1918	1919
GROSS INCOME:		
Compensation for Lease of Road	$23,201,015.60	$23,201,015.60
All Other Rent Income	676,387.69	731,161.44
Dividends on Stocks Owned	1,026,130.00	1,020,460.00
Income from Funded Securities	350,601.14	368,825.98
Income from Unfunded Securities and Accounts, and Other Items	209,542.51	171,560.12
GROSS INCOME	$25,463,676.94	$25,493,023.14
DEDUCTIONS FROM GROSS INCOME:		
Corporate and Operating Expenses	$149,577.04	$382,313.82
Rent for Lease of Other Roads	299,440.87	300,812.46
War Tax Accruals	925,000.00	927,756.86
Miscellaneous Tax Accruals	194,980.02	178,954.08
Interest on Funded Debt	8,816,106.39	9,273,858.67
Other Deductions	707,341.62	446,744.77
TOTAL DEDUCTIONS	$11,092,445.94	$11,510,440.66
NET INCOME	$14,371,231.00	$13,982,582.48
Dividends on Stock	11,952,275.00	11,952,275.00
BALANCE INCOME	$2,418,956.00	$2,030,307.48

On December 24, 1919, the President issued a proclamation relinquishing control and operation of the railroads, effective at 12.01 a. m., March 1, 1920. This was followed by the passage of what is known as the "Transportation Act, 1920," by both houses of Congress, which Act became a law on February 28, 1920, upon being signed by the President.

This law confers broad powers on the Interstate Commerce Commission in the regulation and control of the railroads. Under the Act, for a period of six months beginning March 1, 1920, the railroads are guaranteed an operating income equal to their compensation during government control. The law, however, stipulates that any carrier to avail itself of this provision must, on or before March 15, 1920, file with the Commission a written statement that it accepts all the provisions of Section 209 of the Act, covering such guarantee. Your Board of Directors by appropriate resolution accepted this guarantee and said resolution was duly filed with the Interstate Commerce Commission.

The Commission is also directed to establish rates which will be adequate to provide the carriers as a whole, either in the entire country or in rate groups or territories to be established by the Commission, with an aggregate annual net railway operating income equal, as nearly as may be, to a fair return upon the aggregate value of the railway property of such carriers held for and used in the service of transportation. For the two years beginning March 1, 1920, it is directed to take as such fair return a sum equal to 5½% of such aggregate value. It may in its discretion, however, add not more than one-half of one per cent of such aggregate value to make provision for improvements, betterments or equipment chargeable to capital account. It must be understood that this is not in any way a guaranty of earnings in any amount or at any rate to any individual railroad.

If any carrier receives for any year a net railway operating income in excess of 6 per cent of the value of the railway property held for and used by it in the service of transportation, one-half of such excess shall be placed in a reserve fund established and maintained by such carrier, and the remaining one-half thereof shall be paid to the Interstate Commerce Commission for the purpose of establishing and maintaining a general railroad contingent fund. The moneys in this contingent fund are to remain the property of the government and not to be given to any other carrier.

A $300,000,000 revolving fund is created to assist the carriers in financing their requirements during the period of transition immediately following the termination of federal control.

The Interstate Commerce Commission under this Act has exclusive and plenary jurisdiction over the issuance of railroad securities, or the assumption by the railroad of contingent obligations.

A Railroad Labor Board is created, to consist of nine members equally divided between representatives of the carriers, the employees and the public. This Board has no power to enforce its findings, except through the force of public opinion.

The Transportation Act gives to the Interstate Commerce Commission complete power as to the regulation of the railroad under private ownership and with enlightened public opinion should result in greatly improved transportation facilities and establishment of railroad credit.

MILES OF RAILROAD

The total number of miles of railroad owned December 31, 1919, was		7,927.24 miles
In addition to which the Company had exclusive or trackage rights over the following:		
THROUGH OWNERSHIP OF ENTIRE CAPITAL STOCK—		
Wolf River Valley Railway (Junction east of Elton to White Lake, Wis.)	1.98 "	
UNDER LEASE—		
De Pue, Ladd & Eastern Railroad (Ladd to Seatonville, Ill.)	3.25 miles	
Belle Fourche Valley Railway (Belle Fourche to Newell, S. D.)	23.52 "	
James River Valley and North Western Railway (Blunt to Gettysburg, S. D.)	39.55 "	
Macoupin County Extension Railway (Benld to Staunton, Ill.)	4.36 "	
Iowa Southern Railway (Miami to end of track beyond Consol, Iowa)	13.77 "	
Missouri Valley and Blair Railway and Bridge Company's track	3.36 "	
		87.81 miles
UNDER TRACKAGE RIGHTS—		
Peoria & Pekin Union Railway (in the City of Peoria, Ill.)	2.02 "	
New York Central Railroad (Churchill to Ladd, Ill.)	2.80 "	
Union Pacific Railroad (Broadway Station, Council Bluffs, Iowa, to South Omaha, Neb.)	8.73 "	
Chicago, St. Paul, Minneapolis & Omaha Railway:		
Blair to Omaha, Neb.	24.70 "	
Elroy to Wyeville, Wis.	22.79 "	
In Sioux City, Iowa	2.28 "	
Illinois Central Railroad (Sioux City to Wren, Iowa)	10.10 "	
		73.42 "
Total miles of railroad in operation, December 31, 1919		8,090.45 "

The foregoing mileage is located as follows:

In Illinois	824.53 "
" Wisconsin	2,160.12 "
" Michigan	510.90 "
" Minnesota	650.30 "
" Iowa	1,634.66 "
" North Dakota	14.28 "
" South Dakota	1,063.15 "
" Nebraska	1,102.05 "
" Wyoming	130.46 "
Total	8,090.45 "

CAPITAL STOCK

There has been no change since the close of the preceding year in the Capital Stock and Scrip of the Company.

The Company's authorized Capital Stock is Two Hundred Million Dollars ($200,000,000.00), of which the following has been issued to December 31, 1919:

OUTSTANDING:		
Common Stock and Scrip	$145,157,218.82	
Preferred Stock and Scrip	22,395,120.00	
Special Stock	65,000.00	
Total Stock and Scrip Outstanding		$167,617,338.82
OWNED BY THE COMPANY:		
Common Stock and Scrip	$2,342,422.15	
Preferred Stock and Scrip	3,834.56	
Total Stock and Scrip owned by the Company		2,346,256.71
Total Capital Stock and Scrip, December 31, 1919		$169,963,595.53

FUNDED DEBT

At the close of the preceding year the amount of Funded Debt, exclusive of Bonds in the Treasury and Due from Trustee, was $213,896,000.00

The above amount has been decreased during the year ending December 31, 1919, by Bonds and Equipment Trust Certificates redeemed, as follows:

M. L. S. & W. Ry. Extension and Improvement Sinking Fund Mortgage, 5%, redeemed	$ 65,000.00
C. & N. W. Ry. Sinking Fund of 1879, 5%, redeemed	141,000.00
C. & N. W. Ry. Sinking Fund Debentures of 1933, 5%, redeemed	265,000.00

GENERAL BALANCE SHEET, DECEMBER 31, 1919

(7,927.24 Miles)

ASSETS

INVESTMENTS:		
Road and Equipment—		
Balance to Debit of this Account, December 31, 1918	$406,275,150.46	
Add Sundry Construction and Equipment Expenditures for the year ending December 31, 1919, including Trust Equipment (see statement page 12)	5,844,309.76	
		$412,119,460.22
Cash and Securities in Sinking Funds		2,445,268.02
Miscellaneous Physical Property		544,120.81
Investments in Affiliated Companies		14,983,960.39
Other Investments—		
149,200 Shares of Capital Stock of Chicago, St. Paul, Minneapolis & Omaha Ry. Co.	$ 10,337,152.29	
41,715 Shares of Preferred Stock of Union Pacific Railroad Company	3,910,575.93	
$3,000 C. St. P. M. & O. Ry. Debs. of 1930	2,670.00	
96,000 New York Central & Hudson River R. R. Refunding and Imp. Bonds	89,064.00	
60,000 New York Central Railroad Consolidated Bonds	56,959.44	
5,000,000 United States Government 15-20 Year 4½% Gold Bonds	5,000,000.00	
Miscellaneous	3,481.10	
		19,399,902.76
		$449,492,712.20
CURRENT ASSETS:		
Cash	$ 6,122,861.14	
Special Deposit	700,000.00	
Loans and Bills Receivable	1,001,712.35	
Miscellaneous Accounts prior to January 1, 1918, Receivable	333,139.60	
Other Companies and Individuals	96,258.23	
Due on Land Contracts	705,082.21	
		8,959,053.53
UNITED STATES RAILROAD ADMINISTRATION:		
Accrued Compensation	$46,402,031.20	
Less received on account	26,900,000.00	
	$ 19,502,031.20	
Cash, December 31, 1917, taken over	5,722,051.43	
Agents' and Conductors' Balances, December 31, 1917, taken over	4,035,549.53	
Material and Supplies on Hand, December 31, 1917, taken over	9,832,829.33	
Assets, December 31, 1917, Collected	3,775,613.67	
Revenue prior to January 1, 1918	1,818,699.55	
Road Retired and not Replaced	384,596.48	
Equipment Retired	1,039,368.07	
Accrued Depreciation on Equipment	6,407,416.26	
		52,518,155.52
UNADJUSTED DEBITS:		
Capital Stock and Scrip, C. & N. W. Ry. Co., held in Treasury	$ 2,346,256.71	
Company's Bonds in the Treasury, viz.:		
M. L. S. & W. Ry. Ext. & Imp. Skg. Fund Mtge	16,000.00	
C. & N. W. Ry. 5% Sinking Fund of 1879	6,000.00	
C. & N. W. Ry. Skg. Fund Debentures of 1933	65,000.00	
C. & N. W. Ry. General Mortgage Gold of 1987	3,000,000.00	
C. & N. W. Ry. General Mortgage Gold of 1987 (due from Trustee)	1,506,600.00	
C. & N. W. Ry. Equipment Trust Certificates of 1913, Series D, E and F	6,400,000.00	
C. & N. W. Ry. Equipment Trust Certificates of 1917, Series G, H and I	8,756,000.00	
Other Unadjusted Debits	541,394.97	
		22,637,251.68
		$533,607,172.93

LIABILITIES

CAPITAL STOCK (see statement page 9):		
Outstanding	$167,617,338.82	
Owned by Company	2,346,256.71	
		$169,963,595.53
Premium Realized on Capital Stock		29,657.75
LONG TERM DEBT (see statement pages 20-21):		
Funded Debt held by the Public	$212,250,000.00	
Funded Debt held by Trustee account Sinking Funds	875,000.00	
Funded Debt held by Company and Due from Trustee	19,749,600.00	
		232,874,600.00
CURRENT LIABILITIES:		
Loans and Bills Payable	$ 10,900,000.00	
Audited Accounts Payable	76,277.05	
Miscellaneous Accounts prior to January 1, 1918, Payable	61,094.84	
Matured Interest and Dividends Unpaid	3,669,194.29	
Funded Debt Matured Unpaid	39,400.00	
Unmatured Interest Accrued	1,890,777.49	
Other Current Liabilities	37,067.71	
		16,673,811.38
UNITED STATES RAILROAD ADMINISTRATION:		
Additions and Betterments	$ 12,093,570.11	
Liabilities, December 31, 1917, Paid	13,063,199.22	
Corporate Transactions	2,025,240.22	
Expense prior to January 1, 1918	6,277,162.63	
		33,459,172.18
UNADJUSTED CREDITS:		
Tax Liability	$ 979,629.60	
Accrued Depreciation—Equipment	19,849,503.70	
Balance Premium on C. & N. W. Ry. 5% General Mortgage Gold Bonds of 1987	685,053.68	
Other Unadjusted Credits	498,180.49	
		22,012,367.47
CORPORATE SURPLUS:		
Additions to Property through Surplus	$ 623,971.12	
Sinking Fund on North Western Union Ry. Gold Bonds	1,036,870.52	
Sinking Fund on W. & St. P. R. R. Extension Gold Bonds	1,401,755.56	
		3,062,597.20
Profit and Loss		55,531,371.42
		$533,607,172.93

C. & N. W. Ry. Equipment Trust Certificates of 1912, 4½%, redeemed, viz.:		
Series A	$300,000.00	
Series B	300,000.00	
Series C	400,000.00	
	$1,000,000.00	
Total Funded Debt redeemed		$1,471,000.00
		$212,425,000.00
And the above amount has been increased by C. & N. W. Ry. Co. Serial Notes, 5¼%, sold during the year		700,000.00
Leaving Funded Debt Outstanding, December 31, 1919		$213,125,000.00

BONDS IN THE TREASURY AND DUE FROM TRUSTEE

At the close of the preceding year the amount of the Company's Bonds and Equipment Trust Certificates in the Treasury and Due from Trustee was		$16,241,900.00
The above amount has been increased during the year ending December 31, 1919, as follows:		
W. & St. P. R. R. (Extension Western Division) First Mortgage, 7%, redeemed	$ 27,700.00	
North Western Union Ry. First Mortgage 7%, redeemed	51,000.00	
M. L. S. & W. Ry. Extension and Improvement Sinking Fund Mtge., 5%, redeemed	65,000.00	
C. & N. W. Ry. Sinking Fund of 1879, 5%, redeemed	141,000.00	
C. & N. W. Ry. Sinking Fund Debentures of 1933, 5%, redeemed	265,000.00	
C. & N. W. Ry. Equipment Trust Certificates of 1917, Series I, 5%, issued	1,780,000.00	
C. & N. W. Ry. General Mortgage Gold Bonds of 1987, 5%, received from Trustee account betterment or increase of Company's properties	2,000,000.00	
C. & N. W. Ry. General Mortgage Gold Bonds of 1987, due from Trustee on account of Construction Expenditures made during the year	1,000,000.00	
		5,329,700.00
		$21,571,600.00
And the above amount has been decreased during the year, as follows:		
C. & N. W. Ry. Equipment Trust Certificates of 1913, 4½%, retired, viz.:		
Series D	$400,000.00	
Series E	485,000.00	
Series F	115,000.00	
C. & N. W. Ry. Equipment Trust Certificates of 1917, 5%, retired, viz.:		
Series G	422,000.00	
Series H	400,000.00	
		1,822,000.00
Total, December 31, 1919		$19,749,600.00

In addition to the foregoing transactions, the following Treasury Bonds were exchanged for Trustee's Certificates entitling the Company to an equal amount of C. & N. W. Ry. General Mortgage Gold Bonds of 1987, viz.:

W. & St. P. R. R. (Ext. Western Div.) First Mtge., 7%	$27,800.00
North Western Union Ry. First Mortgage, 7%	51,500.00
M. L. S. & W. Ry. Extension and Improvement Sinking Fund Mortgage, 5%	49,000.00
C. & N. W. Ry. Sinking Fund of 1879, 5%	135,000.00
C. & N. W. Ry. Sinking Fund Debentures of 1933, 5%	200,000.00
Total	$463,300.00

CONSTRUCTION

The construction charges for the year ending December 31, 1919, were as follows:

SUNDRY CONSTRUCTION:		
Bridges, Trestles and Culverts	$ 625,380.37	
New Sidings, Yard Tracks and Spurs to Industries	497,663.45	
Track Elevation	276,643.72	
Buildings and Fixtures	1,010,975.28	
Betterment of Roadway and Track	1,364,825.17	
Shop Machinery and Tools	126,139.57	
Grain Elevators and Storage Warehouses	260,764.79	
Assessments for Public Improvements	59,336.51	
Miscellaneous Construction, including Grade Crossings and other items	26,468.40	
		$4,248,197.26
EQUIPMENT:		
14 Locomotives and 2 Work Equipment Cars	$ 689,940.50	
Improvement of Equipment	335,197.93	
Trust Equipment of 1917, added:		
40 Locomotives	1,832,274.86	
	$2,857,413.29	
Less Original Cost of Equipment Retired, as follows:		
38 Locomotives	$359,521.60	
1 Passenger-train Car	2,026.40	
1,398 Freight-train Cars	845,620.88	
111 Work Equipment Cars	34,087.14	
Other Items	20,044.77	
	1,261,300.79	
		1,596,112.50
Total		$5,844,309.76

LANDS

During the year ending December 31, 1919, 43,553.80 acres and 73 town lots of the Company's Land Grant lands were sold for the total consideration of $1,674,702.18. The number of acres remaining in the several Grants December 31, 1919, amounted to 276,744.39 acres, of which 34,289.63 acres were under contract for sale, leaving unsold 242,454.76 acres.

Appended hereto may be found statements and accounts relating to the business of the Company for the year, and the condition of its affairs on December 31, 1919.

By order of the Board of Directors.

W. H. FINLEY, President.

Chicago, April 1, 1920.

Chicago, Saint Paul, Minneapolis and Omaha Railway Co.— 38th Annual Report

REPORT OF THE BOARD OF DIRECTORS

To the Stockholders of the Chicago, Saint Paul, Minneapolis and Omaha Railway Company:

The Board of Directors submits herewith its report of the affairs of the Chicago, St. Paul, Minneapolis and Omaha Railway Company for the year ending December 31, 1919.

As the operation of your property continued throughout the year 1919 under the control and direction of the United States Railroad Administration, the transactions recorded in this report are those of the corporation and do not include transactions incident to the physical operation of the property.

The Income Account of the Chicago, St. Paul, Minneapolis and Omaha Railway Company for the years ending December 31, 1918 and 1919, was as follows:

	1918	1919
GROSS INCOME:		
Compensation for Lease of Road	$4,934,789.51	$4,934,789.51
All Other Rent Income	32,637.57	35,019.84
Income from Unfunded Securities and Accounts, and Other Items	32,943.36	61,351.09
GROSS INCOME	$5,000,370.44	$5,031,160.44
DEDUCTIONS FROM GROSS INCOME:		
Corporate Operating Expenses	$38,260.51	$88,246.04
War Tax Accruals	192,000.00	182,000.00
Interest on Funded Debt	2,260,474.85	2,282,180.33
Interest on Unfunded Debt	89,105.26	83,634.90
Other Deductions	14,349.32	18,381.58
TOTAL DEDUCTIONS	$2,594,189.94	$2,654,442.85
NET INCOME	$2,406,180.50	$2,376,717.59
Dividends on Stock	1,715,986.00	1,715,986.00
BALANCE INCOME	$690,194.50	$660,731.59

On December 24, 1919, the President issued a proclamation relinquishing control and operation of the railroads, effective at 12.01 a. m., March 1, 1920. This was followed by the passage of what is known as the "Transportation Act, 1920," by both houses of Congress, which act became a law on February 28, 1920, upon being signed by the President.

This law confers broad powers on the Interstate Commerce Commission in the regulation and control of the railroads. Under the Act, for a period of six months beginning March 1, 1920, the railroads are guaranteed an operating income equal to their compensation during government control. The law, however, stipulates that any carrier to avail itself of this provision must, on or before March 15, 1920, file with the Commission a written statement that it accepts all the provisions of Section 209 of the Act, covering such guarantee. Your Board of Directors by appropriate resolution accepted this guarantee and said resolution was duly filed with the Interstate Commerce Commission.

The Commission is also directed to establish rates which will be adequate to provide the carriers as a whole either in the entire country or in rate groups or territories to be established by the Commission with an aggregate annual net railway operating income, equal as nearly as may be to a fair return upon the aggregate value of the railway property of such carriers held for and used in the service of transportation. For the two years beginning March 1, 1920, it is directed to take as such fair return a sum equal to 5½% of such aggregate value. It may, in its discretion, however, add not more than one-half of one per cent of such aggregate value

GENERAL BALANCE SHEET, DECEMBER 31, 1919
(1,679.60 Miles)
ASSETS

INVESTMENTS:			
Road and Equipment—			
Balance to Debit of this Account, December 31, 1918		$80,408,354.67	
Add Sundry Construction and Equipment Expenditures for the year ending December 31, 1919 (see statement page 10)		647,280.03	
			$81,055,634.70
Debenture Gold Bonds of 1930, deposited in Lieu of Mortgaged Property Sold			139,000.00
Miscellaneous Physical Property			189,421.28
Investments in Affiliated Companies			356,600.87
			$81,740,656.85
CURRENT ASSETS:			
Cash		$ 147,479.19	
Special Deposit Account Matured Bonds Unpresented and Interest		35,390.00	
Miscellaneous Accounts prior to January 1, 1918, Receivable		128,330.51	
Other Companies and Individuals		5,840.59	
Other Current Assets		150.00	
			317,190.29
UNITED STATES RAILROAD ADMINISTRATION:			
Accrued Compensation	$9,869,579.02		
Less Received on Account	6,899,985.00		
		$ 2,969,594.02	
Cash, December 31, 1917, taken over		622,808.58	
Agents' and Conductors' Balances, December 31, 1917, taken over		886,299.82	
Material and Supplies on hand, December 31, 1917, taken over		3,356,113.35	
Assets, December 31, 1917, Collected		1,480,626.87	
Revenue prior to January 1, 1918		329,794.20	
Road Retired and Not Replaced		31,636.55	
Equipment Retired		130,195.27	
Accrued Depreciation on Equipment		1,081,326.93	
			10,888,395.59
UNADJUSTED DEBITS:			
Discount on Funded Debt		$ 15,098.62	
C. St. P. M. & O. Ry. Common Stock and Scrip, held in Treasury		2,844,206.64	
C. St. P. M. & O. Ry. Preferred Stock and Scrip, held in Treasury		1,386,974.20	
Debenture Gold Bonds of 1930, held in Treasury		2,561,000.00	
Equipment Trust Certificates of 1917, Series A, held in Treasury		880,000.00	
Consolidated Mortgage Bond Scrip Due from Central Trust Company		634.09	
Other Unadjusted Debits		270,061.17	
			7,957,974.72
			$100,904,217.45

LIABILITIES

CAPITAL STOCK (see statement page 9):			
Outstanding		$ 29,818,945.78	
Owned by Company		4,231,180.84	
			$34,050,126.62
LONG TERM DEBT (see statement page 16):			
Bonds held by the Public		$ 41,362,000.00	
Bonds and Scrip owned by Company		3,580,634.09	
			44,942,634.09
CURRENT LIABILITIES:			
Loans and Bills Payable		$ 1,150,000.00	
Audited Accounts Payable		13,177.18	
Miscellaneous Accounts prior to January 1, 1918, Payable		25,156.46	
Matured Interest and Dividends Unpaid		64,607.50	
Funded Debt Matured Unpaid		60,000.00	
Unmatured Interest and Dividends		1,202,540.50	
Other Current Liabilities		6,146.42	
			2,521,628.06
UNITED STATES RAILROAD ADMINISTRATION:			
Additions and Betterments		$ 1,656,981.39	
Liabilities, December 31, 1917, Paid		3,953,243.85	
Corporate Transactions		281,646.24	
Expense prior to January 1, 1918		907,529.66	
			6,799,401.14
UNADJUSTED CREDITS:			
Tax Liability		$ 713,143.45	
Premium on Funded Debt		321,530.67	
Accrued Depreciation—Equipment		3,926,066.19	
Other Unadjusted Credits		86,318.36	
			5,047,058.67
CORPORATE SURPLUS:			
Additions to Property through Surplus		$ 1,038,763.76	
Profit and Loss		6,504,605.11	
			7,543,368.87
			$100,904,217.45

to make provision for improvements, betterments or equipment chargeable to capital account. It must be understood that this is not in any way a guaranty of earnings in any amount or at any rate to any individual railroad.

If any carrier receives for any year a net railway operating income in excess of 6 per cent of the value of the railway property held for and used by it in the service of transportation, one-half of such excess shall be placed in a reserve fund established and maintained by such carrier, and the remaining one-half thereof shall be paid to the Interstate Commerce Commission for the purpose of establishing and maintaining a general railroad contingent fund. The moneys in this contingent fund are to remain the property of the government and not be given to any other carrier.

A $300,000,000 revolving fund is created to assist the carriers in financing their requirements during the period of transition immediately following the termination of Federal control.

The Interstate Commerce Commission under this act has exclusive and plenary jurisdiction over the issuance of railroad securities, or the assumption by the railroad of contingent obligations.

A Railroad Labor Board is created to consist of nine members equally divided between representatives of the carriers, the employees and the public. This Board has no power to enforce its findings, except through the force of public opinion.

The Transportation Act gives to the Interstate Commerce Commission complete power as to the regulation of the railroad under private ownership and with enlightened public opinion should result in greatly improved transportation facilities and establishment of railroad credit.

MILES OF RAILROAD

The total number of miles of railroad owned December 31, 1919, was			1,679.60 miles
In addition to which the company had trackage rights as follows:			
Northern Pacific Railway (Superior, Wis., to Rice's Point, Minn.)	1.59	miles	
Great Northern Railway (St. Paul to Minneapolis, Minn.)	11.40	"	
Minneapolis and St. Louis Railroad (Minneapolis to Merriam, Minn.)	27.00	"	
Illinois Central Railroad (Le Mars to Sioux City, Iowa)	25.20	"	
Sioux City Bridge Company (bridge across Missouri River and tracks at Sioux City, Iowa)	3.90	"	
Chicago and North Western Railway (Sioux City to Sioux City Bridge Company's track)	.50	"	
			69.59 "
Total Miles of Railroad in Operation December 31, 1919			1,749.19 "
The above milcage is located as follows:			
In Wisconsin			777.55 miles
In Minnesota			473.01 "
In Iowa			102.04 "
In South Dakota			88.20 "
In Nebraska			308.39 "
Total			1,749.19 "

In addition to the foregoing, the company owned 183.03 miles of second track, located as follows:

In Wisconsin	157.09 miles
In Minnesota	24.23 "
In Nebraska	1.71 "
Total	183.03 "

CAPITAL STOCK

There has been no change since the close of the preceding year in the Capital Stock and Scrip of the Company.

The Company's authorized Capital Stock is Fifty Million Dollars ($50,000,000.00), of which the following has been issued to December 31, 1919:

Outstanding:		
Common Stock and Scrip	$18,559,086.69	
Preferred Stock and Scrip	11,259,859.09	
		$29,818,945.78
Owned by the Company:		
Common Stock and Scrip	$2,844,206.64	
Preferred Stock and Scrip	1,386,974.20	
		4,231,180.84
Total Capital Stock and Scrip, December 31, 1919		$34,050,126.62

FUNDED DEBT

During the year ending December 31, 1919, Chicago, Saint Paul, Minneapolis and Omaha Railway Consolidated Mortgage 6% Bonds of 1880 were issued in lieu of a like amount of the following underlying bonds:

Saint Paul and Sioux City Railroad First Mortgage of 1879, 6%, matured	$6,070,000.00
Chicago, Saint Paul and Minneapolis Railway First Mortgage of 1878, 6%, matured	13,000.00
North Wisconsin Railway First Mortgage of 1880, 6%	6,000.00
	$6,089,000.00

BONDS IN THE TREASURY

On December 31, 1918, the amount of the Company's Bonds and Scrip in the Treasury was	$2,990,634.09
The above was increased during the year by the issuance of Chicago, Saint Paul, Minneapolis and Omaha Railway, 5% Debenture Gold Bonds of 1930	700,000.00
	$3,690,634.09
And decreased by the retirement of Equipment Trust Certificates of 1917, Series A	110,000.00
Total Bonds and Scrip in the Treasury, December 31, 1919	$3,580,634.09

CONSTRUCTION

The construction charges for the year ending December 31, 1919, were as follows:

SUNDRY CONSTRUCTION:		
Bridges, Trestles and Culverts	$135,233.15	
Betterment of Roadway and Track	245,945.65	
Sidings and Yard Tracks	64,749.22	
Account Cost of Additional Shop Buildings at St. Paul, Minn.	18,918.38	
Other Buildings	167,624.86	
Machinery and Tools	15,477.83	
Assessments for Public Improvements	26,607.27	
Miscellaneous Charges	379.43	
		$674,935.79
EQUIPMENT:		
Equipment acquired (10 caboose cars)	$28,441.29	
Improvement of Equipment	85,465.83	
	$113,907.12	
Less Original Cost of Equipment Retired, as follows:		
204 Freight-train Cars	$133,635.88	
9 Work Cars	7,927.00	
	141,562.88	
		Cr.27,655.76
		$647,280.03

LANDS

During the year ending December 31, 1919, 5,651.09 acres of the Company's Land Grant lands were sold for the total consideration of $44,925.56. The number of acres remaining in the several Grants December 31, 1919, amounted to 75,772.09 acres, of which 14,885.24 acres were under contract for sale, leaving unsold 60,886.85 acres.

Appended hereto may be found Statements and Accounts relating to the business of the Company for the year, and the condition of its affairs on December 31, 1919.

By order of the Board of Directors.

JAMES T. CLARK,
President.

St. Paul, Minn., April 1, 1920.

Railway Officers

Executive

A. P. Russell, chairman valuation committee and assistant general counsel of the New York, New Haven & Hartford, and vice-president of the Rutland, has been elected vice-president of the Central New England, with headquarters at Boston, Mass., effective May 12.

William R. Scott, whose appointment as president of the Southern Pacific, Texas and Louisiana lines, with headquarters at Houston, Tex., was noted in the *Railway Age* of March 5 (page 733), was born November 8, 1860. Mr. Scott entered railway service in 1881 as a locomotive fireman on the Atchison, Topeka & Santa Fe. From 1883 to 1891 he served as a locomotive engineer on that road and on the latter date was promoted to traveling engineer. In 1898 he was appointed trainmaster on the Northern division of the Gulf, Colorado & Santa Fe, and in 1900 he was promoted to division superintendent. One year later he was appointed general superintendent of the Ft. Worth & Denver City. In September, 1903, he was appointed assistant superintendent on the Sacramento division of the Southern Pacific, and two months later was promoted to superintendent of the Salt Lake division. He was later appointed superintendent of the Western division and in 1907 he was promoted to general superintendent of the Northern district of the Southern Pacific. From November, 1907, to July, 1912, he served as assistant general manager and on the latter date was promoted to general manager. For the four years prior to federal control he served as vice-president and general manager, being appointed federal manager for the U. S. Railroad Administration in July, 1918. On March 1, 1920, he was elected president of the Southern Pacific lines in Texas and Louisiana.

W. R. Scott

Operating

In the sketch of **Charles Gilbert Johnson,** appearing on page 1384 of the *Railway Age* of May 7, the fact was omitted that Mr. Gilbert served as supervisor of efficiency service of the Minneapolis, St. Paul & Sault St. Marie, with headquarters at Minneapolis, Minn., from June 1, 1914, until going to the Erie in 1917.

A. Buckley, assistant superintendent of the First division of the Oregon-Washington Railroad & Navigation Company, with headquarters at Portland, Oregon, has been promoted to superintendent of that division, with the same headquarters, succeeding **B. E. Palmer,** who has resigned, effective May 1. **J. F. Corbett,** assistant superintendent on the second division, with headquarters at La Grande, Ore., has been transferred to succeed Mr. Buckley. **C. F. Roberts,** chief despatcher, with headquarters at La Grande, has been promoted to assistant superintendent, succeeding Mr. Corbett. **T. A. McKinstry,** night chief despatcher, with headquarters at La Grande, has been promoted to chief despatcher, succeeding Mr. Roberts.

Charles Chandler, who has been appointed superintendent of the Southern, with headquarters at Atlanta, Ga., as noted in the *Railway Age* of March 5 (page 750), served as trainmaster of the same road from 1914 until the termination of federal control. Mr. Chandler received a public school education and began railroad work in April, 1892, with the Memphis & Charleston. He served in various capacities until 1895, when he was appointed agent and operator. He went to the North Alabama, now part of the Louisville & Nashville, in 1900, as despatcher, and in 1903 entered the employ of the Southern in the same capacity. He returned to the North Alabama in 1907 as chief despatcher, and retained that position until 1910, when he was appointed trainmaster of the same road. He filled that position until 1914, when he returned to the Southern in the same capacity.

C. D. Baker, who has been appointed assistant general superintendent of the Long Island, with headquarters at Jamaica, N. Y., as noted in the *Railway Age* of March 5 (page 744), served as superintendent with the same headquarters from 1916 until the termination of federal control. With the exception of about six months, Mr. Baker has given his entire railroad service to the Long Island, entering the employ of that road in 1891 as clerk in the car record office. He filled various other positions until 1909, when he was appointed passenger trainmaster in charge of all electrified lines. In 1912 he was detached from the Long Island and became a member of a committee appointed to look into the possibilities of electrifying the surburban lines of the Pennsylvania radiating from the Broad Street station in Philadelphia. In 1913 he again took up service for the Long Island as trainmaster, with supervision over all train operation. He retained that position until 1916, when, as noted above, he was appointed superintendent.

C. D. Baker

Financial, Legal and Accounting

John A. Robinson, who has been appointed auditor of the Cincinnati, New Orleans & Texas Pacific and other roads, with headquarters at Cincinnati, Ohio, as noted in the *Railway Age* of March 5 (page 749), served as assistant federal auditor during part of federal control. Mr. Robinson was born on May 28, 1872, in Jackson County, Ala. He received a public school education and began railroad work on September 1, 1889, as clerk in the accounting department of the Memphis & Charleston, now part of the Southern. He was appointed assistant chief clerk to the auditor of freight accounts in August, 1903, and promoted to chief clerk on July 15, 1907. He then became auditor freight accounts and served in that capacity until August 1, 1914, when he became auditor of revenue. He was appointed assistant federal auditor on August 1, 1918, and retained that position until February 1, 1919, from which time until the termination of federal control he acted as auditor for the corporation, although no official announcement of his appointment was made until just prior to March 1, to take effect on that date.

Traffic

H. G. Burkhalter has been appointed commercial agent of the Louisiana Railway & Navigation Company, with headquarters at Shreveport, La. Other commercial agents appointed are: **E. C. Marens,** Kansas City, Mo.; **R. L. McKee,** Oklahoma City, Okla.; **H. J. Reinhardt,** Little Rock, Ark.; **John A. Smith,** New Orleans, La.; **George Hixon,** Chatta-

nooga, Tenn.; **H. T. Lindsey**, Dallas, Tex.; **T. F. Wilder**, Alexandria, La.; **C. E. Millson**, Baton Rouge, La.

Edwin E. Smith, who has been appointed general passenger agent of the Pittsburgh & Lake Erie, with headquarters at Pittsburgh, Pa., as noted in the *Railway Age* of March 19 (page 996), served as general agent in the passenger department of the Cleveland, Cincinnati, Chicago & St. Louis from March, 1913, until the termination of federal control. Mr. Smith was born on February 28, 1875, and began railroad work on September 1, 1895, with the Cleveland, Cincinnati, Chicago & St. Louis as telegraph operator and ticket agent at Marion, Ind. On May 1, 1900, he went to Louisville, Ky., as city ticket agent, and in June, 1901, he was transferred to Indianapolis, Ind., to serve in the same capacity. He became traveling passenger, with headquarters at Atlanta, Ga., on July 15, 1906, and retained that position until March 1, 1913, when he was appointed general agent at Louisville, Ky. While serving as general agent he was transferred to Cleveland, Ohio, in 1916, and then to Chicago on June 1, 1917.

Andrew K. Morris, who has been appointed coal traffic manager of the Erie, with headquarters at New York, as noted in the *Railway Age* of March 26 (page 1079), served on the Eastern Regional Coal Committee of the Railroad Administration from November, 1919, until the termination of federal control. Mr. Morris was born on August 11, 1878, at Paterson, N. J. He received a high school education and began railroad work on May 1, 1897, as office boy in the coal traffic department of the Erie. Later he served in various other capacities in the same department. He was appointed chief clerk in June, 1903, and promoted to assistant to the coal traffic manager in March, 1913. He became coal freight agent in January, 1916, and retained that position until the establishment of government control, shortly after which he was appointed assistant to the manager of inland traffic, U. S. Fuel Administration, at Washington, D. C. In May, 1918, he was transferred to New York as director of tidewater coal traffic for the Anthracite Committee of the Fuel Administration. The following July he was appointed manager of anthracite distribution in New York state. He was appointed a member of the Eastern Regional Coal Committee as noted above.

J. H. Ketner who has been appointed general freight agent of the Seaboard Air Line with headquarters at Norfolk, Va., as noted in the *Railway Age* of March 5 (page 748) served as assistant general freight agent from July, 1916 until the termination of federal control. Mr. Ketner was born at Atlanta, Ga., and educated in public schools of that city and Washington, D. C. His first railroad work began at Washington in December, 1897 as clerk in the office of the traffic manager of the Southern. Afterwards he served in other clerical capacities in the traffic department until 1902 when he left railroad work to study surgery. He returned in 1903 as rate clerk to the acting general freight agent of the Seaboard Air Line with headquarters at Savannah, Ga. He was promoted to chief clerk on January 1, 1904, and on March 1, 1905, was transferred to Montgomery, Ala., as commercial agent having jurisdiction over the freight and passenger service of the Montgomery territory. He was placed in charge of the commerce department of the Seaboard Air Line with headquarters at Norfolk, Va., on November 1, 1907, and appointed assistant to the general freight agent in January, 1912, and was promoted to assistant general freight agent at the time mentioned above.

Engineering, Maintenance of Way and Signaling

F. Q. Barlow, assistant chief engineer Southern Pacific, with headquarters in San Francisco, has been appointed regional engineer Railroad Administration with headquarters in San Francisco.

H. L. Ripley, corporate chief engineer of the New York, New Haven & Hartford, has been appointed corporate and valuation engineer of the Central New England, effective May 12.

J. C. Schwaab, assistant engineer in the valuation department of the Chicago & Alton, with headquarters in Chicago, has resigned to become city engineer of Alton, Ill., effective May 17.

H. Rhoads has been appointed acting roadmaster on the Minnesota division of the Illinois Central, with headquarters at Dubuque, Ia., succeeding **J. S. McNamara**, who has been granted leave of absence because of sickness.

The biography of **George A. Cellar**, general superintendent of telegraph on the Pennsylvania System, which appeared in the *Railway Age* of May 7 (page 1384), omitted his promotion to superintendent of telegraph of the Western Lines of the Pennsylvania System, with headquarters at Pittsburgh, Pa., in 1904, which position he held at the time of his recent promotion.

W. F. Miller, division engineer of the Pennsylvania, has been assigned to the Delaware division, with headquarters at Wilmington, Del., succeeding S. L. Church, transferred to the Baltimore division. This will appear as a second transfer for Mr. Miller, as the circular dated May 1 and issued by the railroad announced that he had been assigned to the Baltimore division, as stated in the *Railway Age* of May 7 (page 1385).

Obituary

Hobart A. Boomer, general manager of the Lake Erie & Western, with headquarters at Indianapolis, Ind., notice of whose death was published in the *Railway Age* of May 14, page 1436, was born on October 13, 1862, at Philo, Ill. Mr. Boomer entered railway service in 1880, as telegraph operator on the Wabash, St. Louis & Pacific, with headquarters at Edwardsville, Ill., and was later appointed agent. For a few months in 1883, he served as an agent on the Toledo, St. Louis & Western, and in August of that year was appointed chief despatcher. From 1884 to 1896, he was successively promoted to chief despatcher, trainmaster and division superintendent. In May, 1896, he was appointed division superintendent of the Lake Erie & Western, with headquarters at Lafayette, Ind., and in October, 1903, was promoted to general superintendent of that road, with headquarters in Indianapolis. Ten years later he was appointed general manager, with the same headquarters. In June, 1918, Mr. Boomer was appointed federal manager, holding this position until the railroads were returned to private ownership, at which time he was reappointed to his former position of general manager.

H. A. Boomer

Harry F. Lowther, formerly connected with the Chicago, Rock Island & Pacific, and the Delaware, Lackawanna & Western, died in New York City on May 8. Mr. Lowther's last active railroad work was that of chief clerk in the purchasing department of the Delaware, Lackawanna & Western at New York City.

THE METROPOLITAN RAILWAY of London, by means of subsidiary organizations, is reported to be furnishing a substantial contribution of new dwelling houses to meet the prevailing scarcity. In the districts served by the Metropolitan about 1,000 acres are to be utilized. These tracts lie in one of the most beautiful parts of England, being 200 ft. to 450 ft. above sea level. The directors of the railway have a two-fold purpose: to utilize their special resources in providing moderately priced new houses and to create new traffic for their passenger trains.